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THE HOME GARDEN

Four Seasons in the Garden

By EBEN E. REXFORD

A BOOK on gardening for the home-maker by the foremost amateur gardener of the United States. It treats of all phases of the subject, from the simple bed or two along the fence, in a city back yard, to the most ambitious garden the happy suburbanite or country dweller can manage without the services of a professional.

The growing of house plants and the use of plants for household and table decoration are thoroughly described, and a couple of chapters on rural and village improvement carry the home gardening plan into the larger field of community work.

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A HOME GARDEN

THE HOME GARDEN

A BOOK ON VEGETABLE AND SMALL-FRUIT
GROWING, FOR THE USE OF THE
AMATEUR GARDENER

By
EBEN E. REXFORD
Author of "Four Seasons in the Garden," etc.

WITH ILLUSTRATIONS

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FOREWORD

THE writer of this little book is a firm believer in a vegetable garden for every family so situated that it can have one. This for several reasons:

First.—A garden, well cared for, will furnish half if not more of the living for a family of ordinary size, provided, of course, it is made up of persons who are fond of vegetables. Not only is this possible through the summer, but the year round, for many of our best vegetables can be carried through the winter in fine condition with but very little trouble. And it need not be a large garden to do this. The old theory—which was *not* a theory, after all, but a fact—that “a little piece of land, well tilled” is a source of revenue that the wise man cannot afford to overlook, holds true in this case as much as it does when the farm is considered. I know of no other way in which such a goodly share of the family living can be secured; therefore I urge the making of a garden as a means of support for the family.

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Second.—Persons who are fond of vegetables frequently have reason to complain of the lack of freshness and flavor of those bought. It stands to reason that they cannot retain their best qualities for several days, no matter how carefully they may be kept. Because of this drawback, those who would otherwise use vegetables liberally in the household go without them. Consequently, in order to get fine, fresh ones, grow your own.

Third.—Often the appetite of the family fails when confined to a narrow diet. "Things don't taste good," they say. "Let's have a change." If plenty of good vegetables were used, there need be no complaint of this kind, because they furnish that variety which prevents the appetite from becoming jaded. Vegetables are to the daily bill of fare what the soup and the salad are to the ordinary meal. Use them freely, cook them in so many ways that each time they seem like something new, and there will be no complaint about monotony of food. Especially will the woman of the household appreciate a garden, because it will enable her to so vary the daily bill of fare that "the men-folks" will be perfectly satisfied

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with her management of this department of household work.

Fourth.—The writer believes that a vegetable diet is healthier than one in which meats and other heavy foods predominate. Therefore, on hygienic grounds, he would advise everybody who can do so to have a garden.

I am well aware that most men do not seem to look upon gardening with much favor. They class it in with other "puttering" jobs, and are glad to turn it over to the children and the women-folk. Now women, as a general thing, are too busy with their household work to find time to plant, and hoe, and weed, and the boys and girls can hardly be expected to do much in the gardening line without some one to show them what needs doing, and how to do it. This being the case, the garden left wholly to the care of women and children is generally a failure, and because it is so the men of the family declare that "gardens don't pay." True, *such* gardens do *not* pay. But a garden well cared for—a garden treated as scientifically as the average farmer treats his cornfield or his meadow—*will* pay, and pay better than any other part of the farm. And this with but

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little work, for it does not require a great deal of labor to make a garden and keep it clean. If it is planned well and given regular attention, such as is given other portions of the farm, those who have pronounced gardening "a snare and a delusion" will be obliged to admit that they were mistaken. Raise the garden, therefore, to the dignity to which it is justly entitled, and care for it as it ought to be cared for, and you will soon discover wherein you made your mistake when you declared that you "hadn't any time to fool away on garden trash."

Men are so accustomed to the use of machinery in ordinary farm-work that it is not to be wondered at that they do not take kindly to the manual labor involved in weeding the garden after the old order of things. But there is little necessity for this kind of work nowadays. We have so many implements designed expressly for garden use—implements that do their work rapidly and perfectly—that hand-work is almost done away with. When this fact is realized fully—and that will be after one season's trial of our modern garden machinery—not one man in ten will look upon work in the garden with disfavor. He will realize

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that the menial drudgery of gardening operations is a thing of the past, and he will also find that the boys and girls of the family will be delighted to assume largely the responsibility of keeping the garden in proper condition, because operating the machinery of it will seem more like play than work to them. With the modern cultivator equipped with a variety of shovels and hoe-teeth, to suit all kinds of vegetables, one can do more work in an hour, and do it a great deal better, than could be done all day with the ordinary hoe, and this with but small expenditure of muscle. A woman finds that a few minutes' work with the garden cultivator rests her because of the change it affords from housework. It furnishes an exercise which brings half dormant muscles into play, and it takes her out of doors where she gets the tonic of fresh air and sunshine.

Let me urge every one, therefore, to have a garden, if possible. Especially the man who needs some kind of outdoor work to counteract the debilitating effects of indoor occupation. The clerk, the book-keeper, the minister, the student,—any one whose occupation is more

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or less sedentary,—will get health and pleasure and profit out of even a garden so small as to seem hardly worth the name.

Those who know nothing of gardens are quite likely to make the mistake of thinking that it is not worth while to do anything in this line unless one has considerable space to devote to it. Of course the larger the garden the more can be grown in it, but it does not necessarily follow from this that a good deal cannot be grown on a small piece of ground. I have often been astonished to see how many vegetables could be grown in the back yard of a village or city home. Those who are familiar with the garden literature of twenty or twenty-five years ago, will no doubt remember a little book by Charles Barnard, entitled "My Handkerchief Garden," in which the author tells a most entertaining story of what he succeeded in growing on a tiny bit of ground. To the inexperienced the book reads more like a fairy tale than anything else, and those who "don't take stock in gardens" have ridiculed it, declaring that it tells of a garden that existed on paper only. But this I know to be untrue. The garden written about actually existed, and



A FINE GROUP FROM THE HOME GARDEN

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the writer grew in it all the vegetables he mentions. He began the work because the state of his health made it advisable for him to spend some time out of doors every day, after having done his regular literary work. It occurred to him that it would be a good idea to keep a record of his gardening operations, and in this way the book came to be written. It is a record of facts, not fancy. It set the people to thinking, for it opened their eyes to the truth that a good deal can be grown in a small space, that garden-work is pleasant when one enters into the real spirit of it, therefore is valuable when considered as a recreation simply, and that health often comes back to the invalid from coming into close contact with Mother Earth. The little book was the advance courier of much that has since been written about gardening, and did most excellent work as a missionary in a field that had been sadly neglected.

Therefore, do not let the fact that you have only a small piece of land that can be used for gardening purposes prevent you from undertaking to have a garden. Begin the work with the intention of improving every foot of it, and you will be surprised and delighted with

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the result, for it will prove to you that it is not necessary to own an acre of ground in order to have a garden. In fact, an acre-garden is too large, at least by half, for the ordinary family, for it will grow a great many more vegetables than can be used. Of course the surplus can be disposed of, generally to good pecuniary advantage. But this little treatise is not intended for market-gardeners. It is written to encourage those who would do something to help support the family by growing the vegetables they would otherwise have to buy, or go without. I have tried to make everything in it so plain that the amateur cannot fail to grasp the idea I had in mind, and I think he will find little difficulty in doing so. Scientific terms and scientific methods have been ignored, because I find that the average man has but little use for them. In short, I have tried to make everything in the book simple and practical, and I feel confident that any man who has never had any experience in gardening will, if he follows the instructions given, succeed in growing vegetables that he will take pride in, and that the family will enjoy far better than those which come to them at second hand.

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If I could prevail upon the housewife who spends most of her time in the kitchen to relax by putting half an hour every day into work in the garden, I would feel that I had done her a favor which she would be very grateful for, after a little. At first thought, it would no doubt seem quite absurd to her for me to advance the argument that garden-work would prove a recreation. She would be likely to laugh at my advice, and say that my prescription for tired muscles and nerves was simply more work, when it must be plain to every sensible person that what she needed was less work. But if she were to follow out my advice she would soon discover that in *the change of work* was to be found the very rest she needed. The tonic of outdoor air, the healthy influence that comes from contact with the soil, the delightful companionship with nature, and the interest that always grows upon us in watching "the green things growing"—all these would soon make the half-hour in the garden a pleasure to look forward to with eagerness.

I have in mind a half-invalid woman who gave up her housework for a season to a capable girl, and betook herself to the garden.

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Here she worked all day long, in a leisurely fashion, it is true, at first, being wise enough to proportion her efforts to her strength. Before a month had passed she declared that she felt like a new woman. She had an appetite that would have done credit to a farm-hand. She could go to bed now and sleep all night long, and her sleep was full of restfulness. Her face was brown, but its color was the promise of returning health. Before the season was ended she declared herself perfectly well. She had forgotten that she had "nerves." That summer in a garden she counts as one of the important epochs of her life, because it warded off the nervous prostration that had threatened her. She believes that it was the best kind of an outing for her, and every season since then she has spent part of every pleasant day in work which most women think themselves unequal to. The woman who sits down out of doors with folded hands, imagining that in this way she is going to gain a good deal of benefit, is pretty sure to be disappointed. The fact is muscles need exercise if you would make them strong, and the body that is wearied with one kind of work must gain strength by activ-

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ity of another sort. It is not idleness that is needed, for idleness has no tonic in it. What is necessary is change,—change of work, change of conditions, change of thought. Therefore to the overworked housewife I would prescribe a season of gardening as better than all the doctors' drugs. "Throw physic to the dogs," and arm yourself with a hoe and rake, and dig for health among the garden beds. Nine times out of ten those who seek for it there will find it, I feel very sure.

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I.

LOCATION AND SOIL

MUCH more depends on the favorable location of the garden than one who has not had experience would suppose. The general impression among amateurs seems to be that soil is the all-important item. If the ground is rich, there is nothing further to be desired. This is all a mistake. Of course it is quite necessary that the soil should be rich, but the writer knows of many gardens exceptionally good in this respect which are not good growers of vegetables, simply because they slope away from the sun.

The ideal garden slopes to the south, and secures all possible benefit from the sun's rays in early spring, when vegetables are getting their start. But, unfortunately, ideal garden-sites are the exception and not the rule. Per-

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haps nine out of ten are flat, or nearly so. We must take things as we find them in choosing our location, but, as far as possible, choose a site which will receive the greatest amount of benefit from the sun. Something can be gained in a level garden by planting in rows running north and south. This will allow the sun to shine between them, while rows running east and west would cast their shadows over each other.

The first benefit derived from sunshine is the extraction of undue moisture from the soil in early spring. The soil that gets rid soonest of the moisture from melting snows and early rains is the one that can be put in shape at the earliest possible date, because it can be made mellow and friable several days sooner than that which must wait for excessive moisture to drain off. When drainage and sunshine act together, this part of the work is hastened greatly, and is done in the most satisfactory manner. Therefore, press the sun into service as much as you possibly can.

The second benefit which the soil derives from the sun is the warmth which it absorbs during the day. It drinks this in very much as

AN ATTRACTIVE GARDEN SITE



Location and Soil

a dry soil drinks in water, and the good work goes on during the night, lightening, disintegrating, and vivifying. Sunshine is a tonic to any garden, and we cannot have too much of it.

The third benefit derived is in its quickening effect. A *moderately* rich soil, fully exposed to sunshine, will grow earlier vegetables than a *very* rich soil *not* fully supplied with sunshine. One of the secrets of successful vegetable growing is in bringing the plants ahead as rapidly as possible after they get a start. Vegetables that grow slowly are always inferior in quality. They lack tenderness and flavor. In order to secure these qualities, one must have a quick, rich soil, and sunshine enough to give it something of the nature of the hot-bed.

The best soil, all things considered, for the successful production of vegetables, is one that is rather light and sandy—perhaps what the farmer would call a sandy loam. It falls apart readily when turned up by the plow, and speedily becomes mellow under the application of the hoe or cultivator. A heavier soil may have more strength in it, but it is not as desirable for vegetable-growing, because it cannot be worked as early in the season, and cannot so

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easily be put into satisfactory condition as the lighter and more friable soil. What this soil lacks in strength can readily be supplied by the use of good fertilizers. I have seen gardens made out of almost pure sand, heavily manured, which grew excellent crops. Here the sand was simply an agent by which the nutritive qualities of the manure were rendered available. But the vegetables grown in it lacked the fine flavor of those grown in a better soil. *Some* sand in a garden is a most excellent thing, but good loam is the soil from which best results can be expected.

As has been said regarding the location of the garden, we must take things as they are, and do what we can to make the most of them. Heavy soil can be lightened wonderfully by adding coarse, sharp sand as a top dressing, and plowing it under. This can be done when the ground is manured, and both can be worked into the original soil at the same time. The benefit of the sand may not be very apparent the first season, as it will not be as thoroughly incorporated with the native soil then as it will be after repeated workings, but there will be a decided improvement from the start. If

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sand is added several seasons in succession, a soil of heavy clay may be made over into what might almost be considered loam. Old mortar, leaves, litter from the barn-yard,—almost any kind of refuse that will decay, or assist in the process of disintegration,—can be made use of for lightening purposes.

If the spot chosen for the garden is not naturally well drained, it ought to be made so artificially. This is a matter of great importance. A soil that cannot be made to part readily with excess moisture is not one in which vegetables can be grown well. If the ground slopes in any direction, water will run away from force of gravity, but if it is nearly level water will settle into it and remain there until the soil becomes sour—that is if it is a soil that is naturally heavy and therefore retentive of moisture. A garden in such a location ought to be underdrained. Tiling it will accomplish the purpose very satisfactorily. If this cannot be done for any reason, surface-draining can be resorted to, by making ditches at each side with laterals to conduct the water to them from the centre of the garden. This is probably the system most amateur gar-

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deners will employ, as it is the simplest and easiest method and one that does not require skilled labor.

The writer has seen some very good gardens on flat, low lands where nothing could have been grown if a system of ditches had not been constructed to take the water out of the soil several inches below its surface. A broad, deep ditch was run entirely around the garden. Cross-ditches connected with this. These were shallow at the centre, deepening gradually as they neared the main ditch. In this way a fall was secured that would cause the water to run off rapidly from the centre of the garden. After a heavy rain the main ditch would be half full of water for several hours perhaps, but almost always the level of the water was below the roots of the plants in the garden, consequently they were not affected by it. This may have been growing vegetables under difficulties, but it proved the truth of the old saying that where there's a will there's a way, and no doubt the products of such gardens were appreciated much more than they would have been if they had been grown under more favorable conditions. I think we always

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prize most that which is gained by a good deal of effort.

Therefore let me say to any man who owns or can secure control of a piece of ground, make a garden on it, and do your very best to make it bring forth liberally. You will be amply repaid for your labor in more ways than one.

II.

THE PREPARATION OF THE GARDEN

GARDENS in which the soil is heavy can be benefited by fall plowing. If the ground is turned up and left in ridges as it comes from the plow, in October or November, the action of frost on it during the winter will have a decidedly disintegrating effect, and it will be found much more tractable in spring than it would be if freshly plowed. Of course it will need a spring plowing to reduce it to the proper condition for working. This second plowing will put it in very fair shape for immediate use, while a few days' exposure to the combined effects of sun, air, and possibly warm showers, will make it mellowed than after two weeks of exposure with only one plowing. This being the case, I would always advise fall plowing for gardens of heavy soil. Another benefit is derived from fall plowing. The larvæ of many worms will be destroyed by frost in the upturned furrows. For this reason, if no

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other, fall plowing is advisable. But I would not advise fall plowing for the garden whose soil is light and porous. Not that plowing in fall would injure it, but no particular benefit would accrue, and it is just so much unnecessary work.

Do not make the mistake of applying manure in fall, unless you have so much of it that you can afford to waste the greater portion of the fall application. Even if plowed under, much of its beneficial effect will be lost during the late fall rains, which will leach it away to such an extent that next season's crops will get but little good from it, and, later, by the evaporation which takes place during winter under the action of frost, unless the ground is well covered with snow. The idea of evaporation in winter may seem absurd to those who have given the matter but little thought and have not made it one of personal study and investigation. But it is a fact, nevertheless, that a large share of the nutritive properties of manure applied in fall will be dissipated and lost by freezing and thawing. Therefore, unless, as has already been said, you have more manure than you can use to advantage, hold the supply in reserve for spring application.

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Before plowing, I would advise running a harrow over the ground to collect the stalks and débris of last season's crops, of which there will doubtless be a goodly quantity unless you have been gardener long enough to have established the habit of thoroughly cleaning up the garden in the fall—a habit to be heartily encouraged for more reasons than one. If the refuse is raked up and disposed of in the fall, by burning, or by adding it to the compost heap, many eggs of insects which prey upon vegetables will be destroyed, and the spores of fungoid diseases will be rendered comparatively inert. This is a sufficient reason for a general fall cleaning up in the garden, for it is the means of saving a great deal of hard work which would have to be done next season, if eggs and larvæ were left to develop. The neat appearance of a garden in which no refuse is left to show itself above the ordinary covering of snow is another argument in favor of fall cleaning.

It may seem to the amateur that the advice to run a harrow over the ground before plowing, if the garden was left uncared for in the fall, is more the result of whim than anything else, but it is not. Old stalks and roots of last

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year's vegetables will not be wholly plowed under, in nine cases out of ten, and these will be continually cropping up to clog the teeth of the garden cultivator, and interfere with good work. The cleaner the soil the better the quality of the work you can do in it. Bear this in mind, and never leave any refuse to be worked into it.

When you are ready for plowing, spread your manure. Spread it evenly, and use it liberally. The ideal manure for the vegetable garden is that made up largely of cow-droppings which have lain long enough to be well decomposed. If black and friable, it is in the best possible condition. I know of no accurate method of determining the precise quantity to use. Much depends on the quality of the soil, and more, perhaps, on the strength of the manure you use. That which has been kept under shelter will be rich in nutriment, while that which has been left exposed after leaving the barn will have parted with a large percentage of its goodness. There is not much danger of making the garden too rich. The principal danger from excessive use of barnyard-manure is in making the soil so loose that it dries out more readily than it otherwise would—more

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rapidly than is consistent with healthy vegetable growth.

Of course the writer is well aware that cow-manure is not always obtainable. Horse-manure is more plentiful, except in the country. While it is a great deal better than nothing, it is far from being an excellent manure for vegetables. I would much prefer to use the fertilizers kept on sale at agricultural stores. These produce excellent results if one is careful to fit the fertilizer to the soil. By that I mean using just the kind adapted to the soil of your garden. Soils vary greatly even in the same neighborhood, and the fertilizer that answers admirably in one locality may not be what is needed in another. The only way to decide this matter is to get the advice of some one who understands the nature of the soil in your garden, and knows what kind of fertilizer will work best in it. He will be able to tell you what quantity to use, and how to apply it in such a manner as to secure the best results. The dealer in your neighborhood ought to be able to tell you these things. These commercial fertilizers have one advantage over the best of cow-manure, and that is, they never contain seeds of any weeds.

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Plow your garden early in the season, but not until the ground is in what is called good working condition. It is possible to plow it as soon as the frost is out of the ground, but it is not good policy to do so. Wait until most of the water from snow and rain has had a chance to drain away. If you turn up a furrow while the ground is wet and sticky, it will drop from the plow in chunks, and probably remain in that condition for a considerable length of time. But if you wait until surplus moisture is out of the ground, the soil will be pretty likely to crumble apart readily especially after it has been exposed to sun and rain for a short time. You gain nothing by too early plowing, as most amateurs seem to think. In fact, you lose time by it, for the later plowing of a well-drained soil will put the garden in good working condition a few days sooner than it will be if plowed while wet and cold. Here is one of the instances where haste makes waste—of time.

Always plow your garden in such a manner as to get the longest possible furrow. The fewer turns you have to make, the better will the work be done. The amateur may not understand the logic of this assertion until he

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begins gardening, but he will speedily do so when he observes the effect of long and short furrows. Deep or shallow plowing must be determined largely by the nature of the soil. If the surface is of loam, with a sub-soil of clay, do not go deep enough to bring up much of the latter. But if the loam is of considerable depth, deep plowing is advisable, because it brings fresh, strong soil to the surface.

After plowing, use the harrow to pulverize and level the soil. It is a good plan to run this implement both lengthwise and crosswise of the garden, for by so doing the soil is more evenly settled than it can be by going over it in one direction only. The harrow should have long, slender teeth which will go down into the soil well and tear apart everything in the shape of sod or masses of fine roots. Simply skimming the soil is not of much benefit, except for the purpose of levelling.

The foregoing advice on the preparation of the garden is based on the supposition that your plat of ground is large enough to warrant the use of the plow. But perhaps the majority of gardens are so small that a plow could not be used to advantage in them. These will

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have to be prepared by spading. The labor of getting them ready for the reception of seed will be more than is demanded in the garden where the plow can be made use of, but it will not be found so excessive as most amateurs may imagine. If you provide yourself with a thin-bladed spade and keep it sharp, the work can be done rapidly, and it will not be found as exhaustive as you most likely thought would be the case before you settled down to business. One will be surprised to see how much ground can be spaded up in an hour. A little time devoted to this work each day for a week or so will put the garden of the ordinary village lot in proper shape for planting. I am not sure but the spaded garden has some advantages over the plowed one. The soil can be turned up just *where* you want it, and *as* you want it, by the use of the spade, while the plow works alike throughout the garden, though the soil may vary in depth and nature to a considerable extent. A spaded garden always looks best at the beginning, and looks count in gardening as well as elsewhere. But the gardener who has a liking for neatness will make his garden look well, after a little, in spite of all obstacles.

III.

PLANNING THE GARDEN

THE arrangement of the garden is a matter of more importance than one unfamiliar with garden-work would naturally suppose. The amateur is likely to think that it matters very little *how* it is arranged, so long as seeds are put into the ground and crops are harvested from it. The item of labor is not taken into consideration when this opinion is formulated. It is possible to economize nearly if not quite half the work by so planning the garden that what is done in it can be done to the greatest possible advantage.

Time was when the average garden was made up of beds five or six feet across, and varying in length according to the amount of each kind of vegetable grown in them, a bed being devoted to each. The rows generally ran across these beds instead of lengthwise of them, and to get at the centre of the bed in weeding one was obliged to get down on hands

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and knees and reach out at arm's length. In very small gardens this may be as good an arrangement as any, because beds there will be narrow and less difficult to get at, but in gardens of ordinary size beds are no longer considered advisable, for more reasons than one. They waste space, because paths must be left between them; they give short rows, which necessitate much more work in cultivating than the long rows which do away with frequent turns for the adjustment of the cultivator; and they prevent the gardener from doing as thorough work, because there is not the same chance to do it in a five- or six-foot row that there is in a long one where the action of the cultivator is not constantly interrupted. Of course beds can be kept as free from weeds as long rows can, but the point is it will require a good deal more work to do so, and what I am aiming at in this little book, is to so encourage the systematization of matters that work will be reduced to the minimum, because I am well aware that the less drudgery there is connected with garden-work the more gardens there will likely be.

Another argument for long-row planting is

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that such vegetables as require support, like peas, lima beans, and tomatoes, can be trained to much better advantage in the row than in the bed. When grown in beds, vines are likely to form a tangled network of branches, making it impossible to get to all parts easily without breaking them, while in rows it is an easy matter to get to each side without any risk of injury. This argument holds good in the matter of weeding.

In planting in rows, uniform width ought not to be planned, because vegetables vary so much in size that some require but half the space needed by others. Cucumbers and squashes, for instance, will require a row two or three times as wide as peas, beans, cabbages, beets, salsify, and most vegetables of more or less upright growth. Therefore, before making the garden, plan where you are going to grow the different kinds of vegetables, and locate them with due regard to their habit of growth. Corn is upright in habit, but it must have plenty of room on all sides in order to do well. Potatoes spread considerably and must also have plenty of elbow-room. These will require two or three feet of space in the row. But

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salsify, parsnips, beets, early beans, and all the kinds of vegetables used as "greens," are of more or less compact habit, and can be grown in rows a foot wide and have all the room they need in which to fully develop. The space between rows need not be more than a foot wide, if the garden is a small one, though a foot and a half would be more convenient.

It is an excellent plan for the amateur to make a diagram of his proposed garden before beginning work on it. Put it down on paper. Decide, first of all, what vegetables are to be grown, then decide where you will grow them. Locate them on your diagram the same as you propose to have them in your garden, taking pains, as suggested, to group each class of plants by themselves, as far as possible,—the term "class," in this connection, having reference solely to habit of growth rather than family relationship.

If the rows of the garden must run east and west, put tall-growing vegetables, like corn, on the north rows. Next to them beans of the pole or climbing varieties, then peas. This is advised, because those of tallest growth will get the benefit of the sun without shading

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those of lower growth, as they would if planted on the sunward side. It is very necessary that sunshine should be reckoned with as an important factor in vegetable growing, and every thing should be done with a view to getting the greatest possible amount of benefit from it.

I would most earnestly advise the thorough cultivation of every portion of the garden enclosure. Most gardens are surrounded by a border of grass or weeds, it being somewhat difficult to run the plow close to the fence, hedge, or whatever marks the boundary line. This growth harbors worms and insects, and is constantly encroaching upon the cultivated soil. After the plow has done its work, take the spade and turn under every bit of sward. Turn it under deeply, that the grass may be smothered, and you have no further trouble from it. If you simply *skim* the surface, and invert the sod, it will not be long before the grass will grow up through it, and by the end of the season, or sooner, you will have as much sward as ever. Get rid of it, once for all, by doing the work thoroughly. Keep in mind the fact that a garden of the kind under consideration is for the purpose of growing vege-

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tables and vegetables only, and see that all the strength of the soil goes into their production, and not into the growth of weeds and grass which are such aggressive things that they will appropriate the lion's share of nutriment, if allowed to do so.

If any portion of the garden is favored by greater exposure to the sun than other parts of it are, reserve this for such crops as radish, spinach, and early onions, whose growth must be as rapid as possible to be most satisfactory. A slow development of any of these vegetables means toughness and lack of flavor. You must force them ahead as rapidly as possible in order to secure best results, and in doing this richness of soil and warmth have to be combined. Of course the earliest crops of such vegetables as the radish and lettuce will be started, if not matured, in the hot-bed, but there should always be a succession of sowings, in order to secure a supply during the greater part of summer, and these later sowings will generally be made in the open ground, hence the necessity of giving them the best places in the garden. If the soil in which these vegetables are to be planted is not naturally light

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and loamy, it is a wise thing to add sand enough to make it light and friable, and to make use of such fertilizers as are quickest in effect. It is the early vegetable which will be most highly appreciated.

It is always well to plan for a rotation of crops as far as possible. In words, give your vegetables new locations each year if you can conveniently do so. This is advisable because most vegetables exhaust the soil in which they grow of certain elements necessary to their satisfactory development, and to plant them in a soil which you know to be lacking in these elements is poor practice. By shifting them about, year after year, we can generally secure favorable locations for them. If not ideal, this plan will certainly be an improvement on the short-sighted policy of confining vegetables to the same place in the garden season after season. If vegetable-growing is studied in a scientific way we can readily ascertain what elements are extracted from the soil by this, that, or the other vegetable, and the loss can be made good, to a great extent, by the use of fertilizers which can supply the soil with the material from which to construct the

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elements that have been drawn upon most heavily. In other words, we can give back to the soil that which has been taken from it, and fit it for the development of anything we attempt to grow by the employment of proper agents. In order to fully understand this subject it will be necessary for the student-gardener to inform himself as to the peculiarities of the various fertilizers on the market, also the peculiarities of the soil in his garden. But if he does not care to do this, let him consult with some person who has made a success of vegetable-growing, and be governed by his advice. This is, nine times out of ten, more satisfactory than experimenting, unless one's experiments can be carried on under the supervision of a practical man who has outgrown the experimenting period.

IV.

PLANTING THE GARDEN

As has been said in another chapter, it is unwise to begin work in the garden too early in the season. The ground must be given time to get rid of excessive moisture before it is safe to do much with it. Vegetables for the earlier crops must be started in the hot-bed rather than in the open ground, therefore very early work in the garden proper is not as necessary as some amateurs seem to think, in order to raise early crops. The hot-bed starts them, the garden matures them, and thus the need for very early planting in beds is done away with.

Plowing can generally be done to the best advantage about the middle of April, at the north. It will not be safe to plant tender vegetables before the first of May, because of frosts which are almost sure to occur, and in some localities the middle of the month is quite early enough. Each person will have to familiarize himself with local conditions, and

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be governed accordingly. Of course it is not possible for anyone to tell positively what the weather is going to be, but old residents will be able to tell you what may reasonably be expected in your locality, and it is safe to be governed by the wisdom which has grown out of years of observation on their part.

It must be borne in mind that earliest plantings do not always give the earliest returns. The thing to aim at is to get the seed in the ground just as soon as the latter *is in the right condition for it, and not before*. If seed is planted before the soil is warm and while it is wet, the chances are that it will fail to germinate. Even if it does come up it will make a slow, poor growth until such time as weather and soil are favorable, and quite often, by that time, seedlings from early planting will be in a diseased condition which will prevent them from doing themselves justice until the effects of too early planting have been overcome. And by that time, nine times out of ten, seedlings from later plantings, when everything was favorable to healthy, vigorous growth, will have got ahead of them. It will therefore be seen that the gardener who gets his seed into

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the ground first is not the one who is surest of growing the earliest or the best crops.

The soil of the garden should be in a condition to pulverize readily before anything is sown in it. Lumpy soil means the failure of a good deal of seed to grow.

I have already spoken of the use of the harrow, after plowing, to level the surface of the ground. We will suppose that this has been done, and that the soil is warm and dry enough to warrant us in getting it ready for seed. The first thing to do is to bring out our diagram and lay out our garden. Provide yourself with a line to stretch lengthwise of the rows, and insure getting them perfectly straight. Never plant "by guess." Of course vegetables grown in crooked, straggling rows will be just as satisfactory in quality as those grown in straight ones, but they never look as well while growing, and the true gardener will take quite as much pride in the appearance of his garden as he does in what he grows in it.

Set a stake firmly at each end of the row, draw your line tautly, and mark out the row by it. Then go over each row marked out with the cultivator, or, if you do not have one

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of these implements, an iron rake, and work the soil over and over until it is as fine as it can possibly be made. The importance of this may not be understood by the amateur gardener, but a little consideration of the matter will make the reason clear to him. Small seeds will not germinate readily, or surely, in coarse soil, nor will the tender, delicate roots of seedlings get the support they need from such a soil. This being the case, it is always advisable to pulverize that part of the row in which seed is to be sown to the last degree of fineness. There is no danger of overdoing this part of the work. Potatoes, corn, beans, peas, and vegetables of that kind will not require so fine a soil as those having small seeds, but care should be taken to have all soil free from lumps, no matter what kind of seed you plant in it.

Until of late years, seed-sowing was a sort of hit-or-miss performance. You might hit it exactly right, and you might miss it altogether. The method generally employed was to make furrows in the ground by drawing a stick or the hoe-handle along it, scatter the seed in them, from the fingers, and cover with loose

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soil thrown out from the furrow. In some places the seed would be too thick, in others too thin, and the covering would vary all the way from almost nothing to an inch or more. The consequence would be that some seed would come up, and some would fail to do so. Happily the seed-sower of today has done away with this uncertain method of planting. This most useful implement can be so adjusted that it will sow seed of any size, sow it as thickly or as thinly as desired, or plant it in hills, and cover everything evenly, and all is done with going over the ground once. Thus the work of putting in seed is not only greatly simplified, but it is done much better than where the old method is followed, and done in a fraction of the time. Full directions for operating the garden seed-sower accompany each machine, and will be readily understood by the amateur.

If seed must be sown by hand, go about the work carefully. For fine seed, do not make the furrows more than an eighth of an inch in depth. Cover very lightly. A better plan, in my way of thinking, is to simply scatter the seed on the ground, and press it down with a smooth board. This makes the soil sufficiently

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compact to retain moisture enough about the seed to insure germination. The pressure of the board imbeds it in the soil, and no covering will be needed.

In proportion as seed increases in size, use more soil for covering. Most seedsmen nowadays print quite full cultural directions on the package. These should be carefully read and followed. You will also find general directions for planting and after-care in the catalogues.

Let me say something, right here, about the kind of seed to use. Always get the best in the market. But how can we tell which is the best, may be asked. To which I answer: by always buying of dealers of established reputation,—men who have dealt so fairly and so honorably with their customers that they hold them year after year, and, in some instances, to my personal knowledge, generation after generation. I buy all the seed I use of a firm from which my grandfather bought his. Of course the original members of the firm have gone, but the same honorable methods which characterized its beginning have been continued to the present time, and we know that whatever this firm sells can be relied on as absolutely

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true to what is claimed for it. Of course there are many new firms which no doubt deal quite as honorably, but we do not *know* this, therefore we keep on patronizing the old one. It is safe to patronize any of the long-established seed houses, because the fact of their long continuance in the business argues that they give entire satisfaction to their customers. Their seeds may cost more than those offered by new firms who are bidding for patronage, but it pays to put a little more money into them and be sure of what you are getting. You cannot only depend on getting good quality, but you will be sure to get the varieties you order. Some firms are so unscrupulous in their efforts to gain trade that they will send you something *labelled* to fit your order, but in many instances it proves untrue to name, and you are very much disappointed thereby. Investigate before ordering from a new firm, for much of the satisfaction of having a garden grows out of a selection of the best varieties. You cannot afford to cultivate inferior sorts.

Special directions will be given under the description of each vegetable adapted to the amateur's garden.

V.

GARDEN IMPLEMENTS

EVERY person who becomes a gardener on a large or small scale should provide himself with the various implements which simplify and expedite the work to be done. In this age of machinery we cannot afford to do by hand that which can be done to better advantage by the use of tools which can be had for a reasonable price, and which do the work required of them rapidly and in a superior manner.

One of the most important and necessary of all garden implements is the cultivator or wheel-hoe. This tool makes weeding easy, enables one to do it in the shortest possible time, does away with the use of the ordinary hoe to a great extent, and has the merit of being equally useful in a large or small garden. In a half hour one can accomplish more with a cultivator than he can all day by ordinary manual labor, and he has the satisfaction of knowing that while his work has been done expedi-

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tiously, it has been done in a thoroughly satisfactory manner. There is no such thing as doing it slightly when this implement is used. The ease of its operation adapts it admirably to the use of women and children, who can do just as good work with it as any man. It is so adjustable that it can be made to do its work in any manner required. In a minute it can be regulated to go deep into the soil, or simply scarify the surface. It can be adjusted to rows of any width,—in a word, it is a tool that can be made to do just what you want it to do, and is so simple in its construction and management that anyone can operate it with perfect success. No gardener can afford to be without one.

In purchasing a cultivator, I would advise getting the style having two wheels, as this enables one to cultivate both sides of a row at the same time. The single-wheel implement obliges one to go along the row twice in order to complete the cultivation of it. Both kinds are fitted with a small plow attachment, hoes, and wide and narrow teeth. These can be set at any desired angle, and in such a manner as to throw the soil *from* the row, or *into* it. There

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are many kinds of these cultivators on the market, and of course I can specify no particular kind or make, but, before purchasing, look about among the dealers and be sure to get a machine that is simple, practical, and positive in its operation, and by all means buy one that is capable of a wide range of work. A good cultivator will pay for itself in a single season, and will last indefinitely if properly cared for. It should be cleaned every time it is used, and kept under shelter when not in use. Any tool that is allowed to stand with soil adhering to it, or exposed to the weather, will soon become rusty, and then it will clog easily and work hard until use scours it clean. House your garden tools when they are not in use, especially in winter, and they will last three times as long as those which are neglected in this respect.

Another useful implement in the garden is the seed drill. This machine enables you to drop the seed just where it is wanted, four, six, eight, or twelve inches apart, or in a continuous row. This is operated after the fashion of the cultivator, being similar in construction. There is a hand-seeder on the market which the

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owner of a small garden will find admirably adapted to his needs. It sows cabbage, carrot, celery, lettuce, radish, and all such seeds with perfect regularity, and does the work ten times as rapidly as it can be done by hand, and far more evenly. The quantity to be sown can be regulated, also the depth. It will sow a packet of seed, or a larger quantity, as desired. It is simple, easily understood, and cannot get out of order. While not absolutely necessary, it is a most desirable thing for any garden, and I would urge the use of it.

Every gardener ought to own a spade. The kind to get is one having a rather narrow blade, which should be thin, with a good cutting edge. A heavy, clumsy spade is out of place in the garden, and a "cheap" spade,—cheap in quality as well as in manufacture,—is dear at any price. Keep the edge of the spade well filed and you will always be able to do good work easily, but let it get dull and you will find it a tiresome tool with which to work.

A long handled shovel will come in play almost every day. The shovel with a broad, square blade, turned up somewhat at the sides, is a very useful implement in the garden.

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There should be a hoe in every garden. There is a hoe called the Warren,—probably so named because of its manufacturer,—which has a V-shaped blade, with the handle inserted in the centre. This gives a wide blade to use as desired, with a point at the other extremity. With this point it is possible to pick weeds away from vegetable seedlings almost as surely and safely as can be done with the fingers, and far more easily. This cannot be done with the ordinary wide-bladed hoe which has to be used with great caution in working among the weeds in the garden, and even then one is likely to cut off many of the seedlings with the weeds. With the V-shaped hoe, all can be done that is possible with the ordinary hoe, and it has a much wider range of usefulness than that tool. So useful is this style that I wonder why it is not universally employed.

There should also be an iron-toothed rake in every garden. Don't get the very cheap kind. Get one that has good material in it. See that its teeth are regular in length, and that that part facing the user has a slanting rather than a flat surface. A wooden-toothed rake is little better than nothing. One needs

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something heavy enough to break clods apart when applied with force.

Every gardener should be the owner of a weeding-hook. There are several styles on the market, many of them being so much alike in shape and method of operation that they are practically the same thing, though given different names. Nearly all are provided with metal fingers which penetrate the earth and uproot weeds very rapidly, with very little exertion on the part of the operator. With a little practice this can be done without disturbing the plants one is weeding among. The teeth or fingers of these weeders do double duty, as, in addition to pulling up the weeds, they stir the soil to the depth of an inch or two, thus helping to make it light and porous and making the use of the hoe unnecessary for this purpose. These hooks do away almost entirely with the unpleasant work of pulling weeds by hand, and enable one to do more in ten minutes than could be done in an hour with the fingers. Hand-weeding is slow, disagreeable work, and has done more to make gardening unpopular than all else combined. Another style of weeder has a curving blade

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with a sharp cutting edge. This shaves off the weeds instead of pulling them up. It will do very effective work, but is not as desirable, all things considered, as the hook.

There should be a wheelbarrow or hand-cart in every garden. Perhaps, for general use, the cart will be best, but for such heavy work as hauling manure the wheelbarrow is most satisfactory. Invest in both, if you can afford to do so.

All gardeners ought to provide themselves with a spraying apparatus, for, in these days of bugs, insects, and diseases of a fungoid nature, it is almost absolutely necessary to spray the plants if one would grow perfect crops.

There is a spray-pump which is operated by hand from a bucket of water, which does most excellent work and is as useful for washing windows, buggies, and putting out incipient fires as it is in the garden. There is also a device called an auto-sprayer, which is self-operating. By pumping air into a tank partly full of water, and opening a valve, a continuous spray will be thrown off for some time. This machine does very good work and is a great labor-saver.

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Of course the reader understands that it is not absolutely necessary to employ all these implements in order to have a good garden. In times when a spade and hoe constituted the entire garden outfit, just as good vegetables were grown as can be grown today, but it required a good deal more labor to bring about the desired result. The fact that the use of labor-saving implements enables one to accomplish so much more in a short time, do it with greater ease, and do it just as well if not better, is the strong argument in their favor. And, too, most men, and especially boys, like to use machinery. Nine boys, I venture to say, can be made to take an interest in the garden where the implements I have mentioned are used, where one could be induced to work in it with simply a hoe and spade. Boys, like men, have a horror of pulling weeds, and the writer of this cannot say that he blames them for it, for he can easily remember the time when he would rather take a whipping than weed the garden for an hour. He very much doubts if he would have a garden now if all the work in it had to be done in the slow, hard, old-fashioned way. But since he has found

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out that by the use of the various implements calculated to make garden-work easy and expeditious as much can be done in an hour as could formerly be done in a day, and this without breaking his back by bending over beds and gripping weeds until his fingers are sore and stiff, he has come to look upon gardening operations as a recreation rather than something to be dreaded. It is not the part of wisdom to expend one's brawn and muscle on what a machine can be made to do, and the wise gardener, be he amateur or professional, will see that his garden is stocked with all kinds of labor-saving implements.

VI.

WEEDING AND TRANSPLANTING

VERY little can be done in the way of weeding until the seedling vegetables are of a size that will make it easy for the amateur to tell "which is which" readily. As soon as this can be done, weeding should begin. If this part of garden-work is done thoroughly at the start, it will be comparatively easy to keep the weeds under during the remainder of the season. As they are wonderfully aggressive and extremely rapid in development, a little neglect at the time when they should receive careful attention will enable them to get a start that will be greatly to the detriment of the vegetable plants among which they grow, and make the work of cleaning out the beds not only difficult but dangerous, for their roots will have become so interwoven with those of the other plants that it will be almost impossible to pull up one without uprooting the other. This is why

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weed-pulling ought to begin as early in the season as possible.

Here is where the hand-weeder comes into play. By inserting its claws or fingers into the soil close to the seedling vegetables, and drawing it towards you or away from the plants, it is an easy matter to dispose of the weeds without disturbing the other plants in the least. Of course those weeds growing *in* the row and *among* the vegetables will have to be pulled out by hand, but this can be done very rapidly and easily after the rest of the weeds are cleared away. After the weeder has been used on each side of the row, it may be necessary to use the hoe and draw back the displaced soil. It is always a good plan to keep the earth well up about the base of the plants.

In weeding, make it a point, always, to gather up all the weeds that have been pulled and take them away from the garden. It is a good idea to have a corner somewhere reserved for a compost heap. Into this dump your weeds and all refuse of a vegetable nature that will decay readily,—leaves, turfy matter, and the like,—and allow decomposition to take place. Stir the heap frequently. Satu-

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rate it with the soapsuds of washing-day. At the end of the season mix some rich earth and sand with it, and next spring you will have some good soil to use in the hot-bed. If weeds are allowed to lie on the ground after they are pulled, many of them will take root and grow again, and it will be necessary to pull them a second time. Moreover a pile of pulled-up weeds is unsightly, so for that reason, if no other, dispose of them promptly.

After having cleared away along the row, and for a space of about three inches each side of it, the garden cultivator can be brought into use. Use it so frequently and so thoroughly that not a weed can get a start. It is an easy matter to keep the garden clean, if, as has been advised, you begin early in the season. But allow weeds to get ahead of you, as they surely will if you let them alone for a little while when they are in the early stages of development, and you will find that a good deal of hard work is required to bring them into subjugation. The gardener who takes pride in his garden and who aims to grow vegetables to perfection recognizes the fact that there is a constant warfare between the two kinds of

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plants, and that half-way measures will not count. If you do not give the weeds to understand that they will not be tolerated, they will most surely get the start of you in the long run, and every weed that is allowed to perfect seed will stock the ground with its progeny for the coming season. Get the garden clean at the beginning of the season and *keep* it so, and you will have done away with a good deal of the work that would have to be done next year, if you were to compromise with weeds *this* year. Make it a rule to pull up or cut off every weed as soon as discovered.

The use of the cultivator should be continued throughout the greater part of the season, or until the vegetables have begun to mature. It is a scientific fact that vegetable growth is greatly benefited by a free admission of air to the roots. This is one of the good results of keeping the soil light and porous. Another and the most important is that in dry weather a frequently stirred soil absorbs whatever moisture there is in the air. It acts like a sponge. But if the soil is allowed to crust over, under the mistaken idea that stirring would permit all the moisture in it to evaporate, crops will

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suffer greatly from lack of dampness at their roots, in seasons of drought. The farmer who keeps the cultivator going almost constantly in his cornfield during a "dry spell" knows what he is about, and is acting along scientific lines. He is putting his soil in a condition that will enable it to extract and absorb all the moisture there is in the air, especially at night, and a field so cared for will stand drought a hundred per cent. better than one the crusted surface of which repels all moisture. Therefore be sure to see that the soil is always kept light and porous.

It often happens that considerable transplanting has to be done. Seed may fail to germinate here and there in the row. Frost may nip some plants, and make it necessary to fill their places with new ones. Seedlings from the hot-bed will have to be set out.

Transplanting is easily and safely done if one goes at it in the right way. The first thing to do is to get the soil in readiness for the reception of the plants. This is done by working it over and over until it is fine and mellow. Choose a cloudy day for the work, if possible. If the weather is bright and hot, do it after sundown.

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Make little holes in the ground deep enough to accommodate the roots wherever a plant is to be placed, using for this purpose a stick having a tapering point.

Remove your seedlings from row, hot-bed, or cold-frame as carefully as possible. Aim to lift them without breaking their delicate roots. This can be done if you use a small trowel, or a piece of smooth, flat wood, made thin and sharp at the point. Never take hold of a plant and attempt to pull it out of the soil until the earth about it has been so loosened that there will be no resistance to overcome. The right way to lift a plant is by taking it up with enough soil adhering to its roots to keep them from coming in contact with the air. If this cannot be done, lay them, as fast as lifted, on a layer of damp moss, or a cloth that is well saturated with water, and keep them shaded. Get them into the ground as soon as you can. If their roots are exposed to the air and become dry, your plants are ruined. If the weather is dry, apply water to the soil containing the plants to be lifted, before you begin the work of transplanting. Take the seedling carefully between the thumb and finger of the left hand,

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drop its roots into the hole made to receive them,—but not letting go of the plant,—and press the soil lightly about it with the right hand. Then water well to settle the soil firmly about the roots and furnish moisture for the plant until it can send out new feeding roots.

If the next day is hot and sunny, shade the newly set plants in some way. I make a cone of thick brown paper, six or eight inches across, insert a stick a foot in length in one side of it to hold the folds together, and put the other end of the stick into the ground close to the plant. This gives plenty of shade and allows the air to circulate freely about the plant. It is a good plan to cover the soil about the newly set plants with dry earth or road dust. This has a tendency to prevent the evaporation of moisture, and generally makes it unnecessary to water a second time, unless the season is an excessively dry one.

If a young plant is handled carefully and managed properly, it will very soon establish itself in its new quarters, and quite often will go on growing as if nothing had happened to it. But bear in mind that much depends upon the careful work of the gardener.

VII.

THE HOT-BED AND COLD-FRAME

ONE of the first things to be done in spring in the line of gardening operations is the making of a hot-bed in which to grow plants for transplanting to the garden as soon as the weather will permit. While I would not advise anyone to depend on seedlings grown in the hot-bed for a general crop of any vegetable, I would advise starting a quantity of each kind from which an early crop is desired. Those who would like to grow vegetables for market will find it very important to get them under way early in the season, if they would reap the benefit of good prices. A well-constructed hot-bed, well cared for, will enable the gardener to have vegetables of certain kinds nearly a month earlier than he can hope to have if he depends on the garden for them.

The location of the hot-bed is a matter of considerable importance. It should be on a soil that has good drainage, in a place well sheltered

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from wind, and fully exposed to the sun. It should also be near the house, for convenience in giving it frequent attention.

Let me say, right here, that the idea that almost anything in the shape of a pile of manure with a few boards about it and a covering of sash will answer all the purposes of a hot-bed, as well as a more carefully constructed arrangement would, is wrong. To do good work—and you want that or nothing—you must construct your hot-bed as thoroughly as you would your poultry-house, or your stable. A make-shift affair is not one in which you will be likely to grow good plants, but will be a constant source of annoyance to you, and will very likely be the cause of entire failure in the growing of seedlings for early planting out. Therefore build with a view to substantial results.

Fresh manure from the horse stable, mixed with litter from bedding, is the material most generally made use of to furnish the heat required in the hot-bed. A quantity of this material is spread on the site selected for the hot-bed, covering a space somewhat larger than the bed itself is expected to be. Spread

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it in layers a few inches in depth, and tramp down each layer before another is added.

When the pile is eighteen inches or two feet in depth, finish off by rounding it over in such a manner that it will shed rain, or cover it with oil-cloth. Leave it in this condition for a few days till fermentation sets in. This can be told by a warm moisture which will be seen rising from it. The mass should then be well forked over, shaking out the long straw, as this is done, and made into another compact heap, as at first. In two or three days it will give evidence of further heating. After this it is likely to be in a condition for final disposition in the bed. As the manure is now thrown into shape, pack it down well, making it as uniformly compact as possible. It is quite important that the foundation should have considerable solidity, as you will soon discover that a heap of loose litter amounts to next to nothing for hot-bed purposes. There should be not less than two feet of this material.

The frame, which the wise gardener will have constructed in advance of the season, should now be put in place, and fitted with sash. Bank up well outside the frame with

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coarse manure, firmly packed down. Allow the sash to remain in place until strong heat is generated. When this begins to decrease and the thermometer does not register more than 85° or 90° , cover the manure inside the frame with about six inches of the finest and mellowest soil you can obtain. When this is done, the bed is ready for use.

The making of a hot-bed frame is a simple piece of carpentering. At the back it should be about eighteen inches high. If it is six feet wide there should be a slope of six or eight inches towards the sun. This would make the front ten or twelve inches deep, according to the slope decided on. The slope is one of the important things to consider, for the sash should be of just the right angle to receive the fullest possible benefit from the sun. If too flat, or too abrupt, you fail to get the warmth desired. Therefore satisfy yourself as to the angle that would be most satisfactory, and make other matters subordinate to it.

Bevel the back and front of the boards of the frame, that the sash may hug closely and fit snugly all around. Care should be taken, in putting the frame together, to have every

The Hot-Bed and Cold-Frame

joint perfect, for poor joints and ill-fitting sash will allow heat to escape more rapidly than it is generated, thus making the hot-bed a failure.

If more than one sash is used to each frame or section, a stout piece of wood should run from front to back for the pieces of sash to rest on, where they meet. If large pieces of sash are used, they will be found quite heavy, and the frame and its cross-strips should be substantially made, or there may be a collapse at a time when such a happening would be disastrous in the extreme. It pays to do good work, while you are about it. A good hot-bed frame will do duty for several seasons, if well constructed and properly cared for after it is emptied of its seedlings.

It often happens that we have severe weather after we get the hot-bed in operation. In such cases we must cover the sash with something that will prevent frost from forming on the glass and radiating cold down upon the delicate young plants. Strips of matting, old carpet, or blankets, will answer as well as anything.

If the weather is bright and warm, it will be necessary to admit a little air to hot-bed seedlings during the middle of the day; but

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do not lift the sash very much, and be sure that no cold wind can blow in upon the tender plants. To facilitate this part of the work, it is a good plan to have the sash hung with hinges, at the back of the frame. If this is done, they can be raised or lowered without slipping out of place, as they will be quite likely to do if simply placed over the frame without fastening.

In sowing seed in the hot-bed, cover lightly with soil and press the latter down enough to make it somewhat firm, but do not pack it solidly. Water can be applied, as needed, with a watering-pot having a spray nozzle. Never use a stream when watering plants in the hot-bed, as that will wash the soil away from the roots of the plants. If the glass becomes covered with moisture, after watering or from evaporation at any time during the day, lift the sash a little to allow the surplus moisture to pass off, and clear the glass so that the rays of the sun will be enabled to get to the plants freely.

A cold-frame is almost as important as a hot-bed. The two ought always to go together. It is simply a frame of boards constructed like that of the hot-bed, and set over a quantity of rich soil into which the seedlings from



SASH, MATS AND SHUTTERS FOR HOT-BEDS

The Hot-Bed and Cold-Frame

the hot-bed are transplanted when they have attained some size. This frame should also be fitted with a covering of sash. This should be lifted on all pleasant days, to give the plants inside the benefit of fresh air, and thus harden them for the time when they must go into the ground outside. At night and on all cold days the sash must be closed to retain the necessary degree of warmth. A little chilly weather will often injure the plants quite as much as a touch of frost would.

In sunny weather be sure to open the cold-frame before the heat of the sun, by concentration on the glass becomes too intense for the young plants. The admission of fresh air will counteract all danger from this source.

The temperature in the cold-frame ought to range between 60° and 65° if one would grow strong and healthy plants, and of course one wants to grow nothing else.

It will readily be understood from what has been said that both hot-bed and cold-frame will require considerable attention. They cannot be expected to take care of themselves after being built. They must be regulated according to the weather. Air must be ad-

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mitted whenever it is possible to do so without injury to the plants, and cold draughts must be avoided as one would avoid the plague. It will be necessary to consult the thermometer a good many times a day. That is what must be depended on more than anything else in the management of hot-bed and cold-frame.

In the north the first of March is quite early enough to start a hot-bed for the growing of *very early* vegetables, and a month later for plants intended for general garden use.

It is not advisable to have plants remain in either hot-bed or cold-frame so long that they become weakened by too long-continued heat. Injury of this kind can only be prevented by the proper admission of fresh air, and the regulation of the temperature as already advised. I make mention of this again because it is something that no gardener can afford to ignore, and I desire to fully impress the fact upon his mind.

Do not take the trouble to start any of the ordinary vegetables, which mature during the latter part of summer in the garden, in the hot-bed. They will come ahead rapidly enough if planted in the open ground, where they will be much easier to care for.

VIII.

INSECTICIDES AND FUNGICIDES

THE gardener hardly expects, nowadays, to mature a crop of vegetables or small fruits without having to fight insects and diseases of a fungoid character. So prevalent has the practice become that he prepares for it at the beginning of the season. Knowing that in all probability insects will come and that fungus will appear sooner or later, it behooves him to act on the offensive, or, in other words, to get the start of plant-enemies, for it is easier to keep them away than it is to get rid of them after they have taken possession of one's plants. Don't wait for them to put in an appearance. Take measures to prevent their doing so by the occasional use of reliable insecticides and fungicides about the time they may be expected to arrive.

We have many formulæ for the preparation of these applications, some of them so elaborate that not one person out of twenty-five would

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ever think of making them up. The very look of the recipe is so formidable that the average gardener thinks he will take his chances with the insects rather than be to the trouble of attempting work that seems fitted only to the chemist. I have satisfied myself, from some years of personal experience, that these elaborate preparations are really no more effective than the simpler ones. I shall therefore give the formulæ of a few standard preparations for fighting plant foes, believing that the intelligent use of these will be quite sufficient to meet the necessities of most cases.

SOAP INFUSION, OR KEROSENE EMULSION

This insecticide kills by contact, doing most excellent work among insects that sap the vitality of a plant by sucking its juices. It can be used with admirable results about the roots of plants to destroy larvæ in the soil and the lice which sometimes do most destructive work underground. While intended, primarily, for the destruction of sucking insects, it is very effective among leaf-eating sorts.

Kerosene.....	1 gallon
Ivory soap.....	$\frac{1}{2}$ pound
Soft water.....	$\frac{1}{2}$ gallon

Insecticides and Fungicides

Shave the soap and put it into the water as soon as the latter comes to a brisk boil. When wholly dissolved, remove from the fire and add the kerosene. Churn the mixture with force-pump or syringe, until a creamy emulsion is secured. If perfect union takes place you will have a jelly-like substance which will readily emulsify with water when the latter is added. Much depends upon the force used in churning the mixture. It must be agitated thoroughly, rapidly, and until there is a complete union of the several ingredients.

For scale, use one part of this emulsion to nine parts water; for soft insects, like plant lice, one part emulsion to twenty parts water; for other insects, one part emulsion to fifteen parts of water.

Apply with a sprayer, taking pains to have the mixture reach all parts of the plants. If you are fighting an enemy that hides on the under side of the foliage, it is well to have some one bend the plant over while you apply the insecticide, as success depends to a great extent on the thoroughness with which the preparation is used.

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BORDEAUX MIXTURE

The following is the official formula for the preparation of this standard fungicide, as sent out by the United States Department of Agriculture:

In a barrel that will hold forty-five gallons, dissolve six pounds of copper sulphate, using eight or ten gallons of water, or as much as may be necessary for the purpose. Slake four pounds of fresh lime in a tub by pouring water over it until disintegrated. Then add enough water to make it about the consistency of thick cream. Stretch a coarse gunny sack over the head of the barrel containing the copper sulphate, and strain the lime mixture through it. Then fill the barrel with water. Stir thoroughly, and the preparation is ready for use.

Because the quantity seems large, the idea may prevail that the cost must be considerable. Such is not the case, however. The cost per gallon of the mixture will not exceed one cent, as copper sulphate can be bought for seven cents a pound, and lime is about thirty cents a bushel, which will make your four pounds cost less than five cents.

In all cases it is desirable to use powdered

Insecticides and Fungicides

copper sulphate, as it dissolves much more readily than that in the lump. It is of the utmost importance that *perfectly fresh lime* should be used. Air-slacked lime is worthless.

The above directions can be depended on as absolutely reliable, for the Department of Agriculture recommends nothing that has not been thoroughly tested.

If Paris green is added to this mixture we have a combined insecticide and fungicide, which can be relied on to do most excellent work. As insects and fungi usually exist together to a considerable extent, it is well to make use of the combination for general applications.

When used on peaches, plums, and other stone fruit, two ounces of Paris green to forty-five gallons of the mixture, or in that proportion, will be sufficient.

For other fruits, berries, and the like, four ounces of Paris green to the same quantity of mixture may be used, or in that proportion.

The writer is well aware that many persons hesitate about using Paris green on vegetables and fruits. The following from Farmers' Bulletin No. 7, United States Department of Agri-

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culture, shows how harmless the article is when used properly:

"Paris green and London purple have been used extensively in this country, for many years, for insecticidal purposes, and not one instance of fatal poisoning from their use has been substantiated. The only danger lies in keeping them about, in bulk. Keep them where they belong,—and that is out of the way of children and meddlesome persons,—and there is nothing to fear."

In the department of this book in which the various kinds of vegetables are treated individually, I shall indicate such special applications as may be necessary to successfully combat the peculiar enemies of the plant under consideration.

IX.

WHAT TO GROW

IN this and the following chapters I propose to make mention of some of the standard varieties of the various kinds of vegetables adapted to amateur culture, and to give, in connection with the descriptions of them, such suggestions as may seem necessary to enable one to grow them well.

If the reader consults the catalogues of the seedsmen in making his selection of seeds for his garden, he will find many kinds described therein of which no mention will be made by me. Many of these are good. Some of them may possibly be superior to those I shall refer to, but most of the kinds sent out each year as "desirable new sorts," "great improvements on old varieties," and the like, prove on trial, to be inferior. They may have some points of merit, but these are not sufficient to overcome the lack of *general* merit which a new kind must have in order to be classed among

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the standard varieties. Most of these "novelties" drop out of the catalogues after a little, and the seed-buying public comes to the conclusion that it is wisdom to stand by the old, well-tried sorts which have become standard because of their many good qualities. While it is quite true that improvement is being made constantly among garden vegetables, it is quite as true that only a small percentage of those advertised as "great improvements on the original" are worth growing. Here the old adage of "prove all things and hold fast to that which is good" is of very pertinent application.

A consultation of the catalogues of all the prominent seedsmen of the country will show that among all the vegetables described therein there are certain varieties in general cultivation, and these are the kinds for the amateur to make use of. They stand at the very head of the list because they are what they are—the representatives of their class upon which the public has set the seal of its approval after years of culture—and I believe it will be difficult to improve on them.

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BEANS

We have bush beans and pole beans. The former are of low, compact growth, and need no support, and on this account most amateur gardeners will be likely to choose them. But the limas or climbing sorts have so superior a flavor that the owner of even a small garden can hardly afford to be without a few hills of them. They have a rich, buttery quality which is seldom found among the bush beans. They are very productive, and will be found superior to any others in the concoction of succotash.

Among the bush beans especial mention should be made of the following varieties:

Refugee. Of compact growth, extremely prolific, pods light green, very solid and tender.

Stringless Green Pod. A very early sort that remains tender and crisp a long time after maturity. Of fine flavor.

Golden Wax. Pods long, thick, tender, fine flavored, and absolutely stringless. A most excellent variety.

Among the limas, Leviathan may be placed at the head of the list, being a great bearer, rich in flavor, and remaining eatable throughout the season.

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General Cultural Directions. Plant in hills about a foot and a half apart. Do not plant until danger of frost is over, unless you arrange for their protection on cold nights. It is a common belief that the bean will grow in almost any soil, but the fact is we have no vegetable that appreciates good treatment more keenly. In a rich soil it will make vigorous growth, yield bountifully, and have a flavor that is never found in crops produced from poor soil. Plant at intervals, for a succession.

BEETS

The beet is a general favorite, and it well deserves its popularity, for it has delicious flavor, is a most attractive looking vegetable when ready for the table, and can be cooked in so many ways that the housewife considers it one of the "stand-bys."

Among the very early sorts Electric is a general favorite, because of its fine-grained flesh and sugary flavor.

Early Eclipse is of rapid growth, very superior in quality, and extremely rich in color. It ranks high in flavor with the housewife who takes pride in carrying out a decorative color

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scheme in which vegetables play an important part.

Crimson Globe is unsurpassed for a second early and main crop. It does not attain to great size, which is a merit rather than a drawback, as large beets are as a general thing stringy, tough, and flavorless. It is of great tenderness in all stages of growth, never becoming tough like the old long-rooted sorts, which are not much grown nowadays except for feeding stock.

Early Bassano has rose-colored flesh. It is sweet and well flavored, but lacks the richness of the dark-colored varieties. The housewife will find it useful in the decoration of the table, however.

Blood Turnip is an excellent sort for a general crop and for winter use. It has fine-grained flesh, is rich in color and superior in flavor.

General Cultural Directions. Sow in rows, about the middle of May. Give a rich, deeply-worked soil. Allow no weeds to grow among the plants.

If sown thickly, the young plants can be thinned out early in the season and used as greens. While young, the leaves are very tender and delicious.

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CABBAGE

For first crop of this vegetable, there is no variety superior to the old Early Wakefield, which has held its own against newer candidates for favor for the last twenty years or more. It cannot be excelled.

For a second crop, the Early Summer continues to hold the popular favor. It is a flat-headed cabbage, of excellent flavor, very tender, and fine-grained. The very early cabbages are lacking in the good qualities of the later sorts, and are mainly valuable because they supply the craving for something in the vegetable line early in the season. But such varieties as Early Summer have all the merits of the later sorts, and will be found invaluable in every collection.

Perhaps the very best late cabbage, and the ideal one for winter use, is the Late Drumhead. It is so compact that a small head will weigh several pounds, and, when cut apart, its leaves will be found so closely folded upon each other that they form a solid mass of tender crispness, juicy, and of superior quality, cooking without a suggestion of stringiness. As a keeper it is unexcelled.



CABBAGE, JERSEY WAKEFIELD

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Another favorite sort is the old Marblehead Mammoth, still one of the best in the market. The chief objection to be urged against it is its great size. An ordinary head could not be used in several days in the average family, and cabbage is a vegetable that soon parts with a good deal of its finest flavor after cutting. Therefore, for the ordinary family, a smaller kind will be found more satisfactory.

The housewife who has an eye for the attractions of the table will want a quantity of the purple cabbage to work up in salads and slaws. Its rich color makes it almost as attractive as flowers.

Set cabbage about two feet apart in the row.

Early cabbage can be started in the hot-bed, but for a later crop I would advise planting the seed in the open ground.

If the flea-beetle attacks your cabbage plants when small, dust them, while damp, with tobacco powder, wood ashes, or air-slacked lime. If the aphid comes, use the kerosene emulsion spoken of in the chapter on Insecticides and Fungicides. For the worms which sometimes eat the leaves during the latter part of the season, this emulsion is one of the most

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valuable remedies. If what is called cabbage rust—but which is really a fungus trouble—attacks the plants, use the Bordeaux mixture.

General Culture Directions. For very early use, start in the hot-bed and transplant to cold-frame as soon as the plants have made a second set of leaves. Put into open ground as soon as danger from frost is over. The soil should be well manured and deeply worked. For late use sow seed in May.

CARROTS

This vegetable is not appreciated as it ought to be, because it does not appeal to the appetite at first eating, as many vegetables do. But after a little a liking for it develops, and one soon becomes fond of it. Carrot is especially useful in soups and other combinations of vegetables.

A small space will grow enough to supply the requirements of a large family. To grow well, it should be given a deep, rich soil—one of sandy loam preferable—and receive good cultivation. This vegetable keeps well in winter, retaining its peculiar flavor to perfection, and remaining crisp and fresh until late in spring.

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Probably the best early variety is Short Horn, fine-grained and rich in flavor.

Danver's Orange is the best variety for winter use—sweet, crisp, and tender.

CAULIFLOWER

This plant, which is a member of the cabbage family, requires precisely the same care and culture advised for cabbage.

For early use, Extra Early Dwarf Erfurt is as good a sort as any.

It is hardly worth while to attempt growing a summer variety, as the plant almost always fails to head well in hot weather, but a late crop can be grown to advantage. If plants have not headed by the time the ground freezes, take them up with a large quantity of soil adhering to their roots, pack them solidly into boxes, and put them in the cellar or cold-frame if the latter can be kept warm enough to permit growth. Much warmth is not needed, but frost should be kept out. The cellar is, all things considered, the safest place for them. Here they will form small heads of delicious tenderness during the winter.

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CELERY

The following abridgment from the directions given by Professor Graves in his recent work on "Celery Growing for Profit" sums up the culture of this popular plant in a few words and a practical way:

In the latter part of February fill a shallow box with clean, mellow loam. Press it down well before putting any seed into it. Apply water enough to make the soil evenly moist all through. Then make little rows in it, and sow the seed rather thickly. Draw the soil thrown up in making the rows over the seed, and press it down firmly. Cover the box with light paper or cloth, to keep the soil dark and moist, and set the box in a place having an even, moderate temperature. The seed will germinate in about ten days. Remove the covering as soon as the young plants appear. Never allow the soil to become dry, but be careful about using too much water, as undue moisture will cause the plants to damp off.

When the young plants have made their second leaves, transplant them into other boxes or flats, setting them an inch apart in the row, and making the rows about two inches

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apart. From these boxes the seedlings can be put into the open ground any time after the middle of May.

Seed may also be sown in the open ground early in the season. Let the soil be rich and worked over until it is very fine. Firm it down well before sowing the seed. For some reason, celery often fails to start well in a loose soil. Sow the seed in rows a foot apart. Cover with about an inch of soil. Thin the plants out until they stand about an inch apart. Cut the tops back once or twice, to encourage a stocky growth. In June or July, transplant. Set in rows three feet apart. Let there be at least six inches between the plants. When this transplanting is done, it should be according to the trench system, which is setting the plants in trenches at least six inches in depth. Cut off the leaves, or rather, the upper half of them, and shorten the roots about one-third when transplanting. Water well. In about six weeks begin to earth up about the plants. Here is where great care is necessary. Gather the leaves together in the left hand, and with the right hand draw the soil in about them packing it so firmly that the leaves, when you

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relax your hold on them, will not throw it out of place. Allow no soil to work itself in among the stalks, when you are "earthing up." In a few days draw in more soil, and keep on doing this from time to time, until the plants are covered nearly to their tips. This part of the process is called blanching, and this it is which makes the plant crisp and tender, and takes away the strong taste which characterizes the plant when not so treated.

There are self-blanching sorts, so called, offered by many of the leading firms of seedsmen, but I have never grown any that did not require a treatment similar to the above to make it satisfactory.

Some growers blanch their crop by setting up wide boards on each side of the row in such a manner as to exclude all light from the plants, except at the very top. This plan answers very well, but it does not give the stalks that brittleness which the lover of good celery demands.

White Plume is one of the earliest sorts. There is a Pink Plume, and a Golden Plume, very similar to White Plume except in color. These varieties are extremely ornamental,

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and the housewife will always be glad to have some of them grown in the family garden for decorative use on the family table. These sorts are not as good keepers as such varieties as Giant Pascal, which is one of our best winter varieties.

Well-blanching celery can be kept through the greater part of winter if it is stored in a place where the temperature is low, and the atmosphere is dry enough not to bring on decay. The plants should be lifted and packed closely together, and their roots should be kept moist. In a low temperature they will not make growth, but simply "hold their own." In a warm place decay is likely to set in early in the season, and in a short time the entire stock will be ruined. Therefore, keep the temperature down, if you would have your celery winter well.

X.
WHAT TO GROW (*Continued*)

SWEET CORN

THIS delicious vegetable should be grown in every garden large enough to give it room. Just gathered from the stalk, it has a delicacy of flavor which the corn obtained in the market never has, unless bought fresh from the grower.

Sweet corn does best in a soil of sandy loam, highly manured. Work it deeply, that the roots may have a chance to penetrate with ease to a considerable depth.

Plant in hills three feet apart for the small-growing early sorts, and four feet apart for the tall, strong-growing kinds like Stowell's Evergreen.

At the north, corn can be planted with safety about the middle of May, but not earlier. In cold, backward seasons, it may be well to defer planting until the twentieth of the month, or even later, as the seed often fails to germinate in a cold, wet soil.

JUST GATHERED FROM THE STALKS



What to Grow

Begin to cultivate it as soon as the plant has made four or five leaves. Keep up this treatment until ears begin to form. One secret of success in the culture of this plant is in keeping the soil always light and open. Air must be admitted to its roots freely, and they must have a chance to spread without difficulty, as they could not in a soil not worked enough to make it friable and mellow.

Plant for a succession of crops, at intervals of ten days or two weeks. By a wise selection of varieties, this delicious vegetable can be enjoyed for several weeks, or up to the coming of frosty weather.

Probably the best very early variety, is Cory, sweet, tender, and productive.

Early Minnesota is a general favorite because of its many excellent qualities.

Dreer's First of All is another early sort that deserves especial mention for its quick development and exceedingly delicious flavor.

A variety of recent introduction that promises to become a standard is Stabler's Early. This is considerably larger than other early kinds, and has a peculiarly rich, sweet flavor and is remarkably tender.

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A standard late variety is Country Gentleman. It is equal in quality to Stowell's Evergreen, but does not remain in condition for table use for so long a time as that variety does. Because of this peculiarity, Stowell's Evergreen is probably the most popular variety of corn ever grown. For flavor, tenderness, and sugary sweetness it cannot be excelled, and when we add to these merits its long-keeping quality we have in it the ideal corn for table use. If one can grow but one variety, by all means let this be the one.

Stowell's Evergreen is an excellent variety for drying. When dried by exposure to the sun, whose warmth seems to condense the sweetness rather than dissipate it, this corn retains much of the delightful flavor which characterizes it when fresh, and will be found far superior to much canned corn.

CUCUMBER

This vegetable can be started in the hot-bed to good advantage. I would advise making little pots for it out of thick paper, about the size of the ordinary teacup. Fill with rich, light soil. Put four or five seeds in each pot.

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When the ground is warm, and not before, these pots can be set directly into the soil, where they will soon decay. In this way the tender roots of the plants will escape disturbance, a matter of considerable importance. When it is safe to plant them out—after all danger from frost is over—set in hills four feet apart each way. Be sure that the soil is very rich. An early and vigorous growth must be encouraged.

Plant for a succession.

If the cucumber beetle attacks the plants, sprinkle with land plaster, or fine road-dust, into which tobacco powder has been thoroughly mixed.

Early White Spine is one of the best very early sorts. It has a delicious flavor, and is very tender and productive.

For late use, and for pickling, Emerald deserves a place near the head of the list. This variety is exceedingly productive, its fruit is very attractive in appearance, being long, dark green, and perfectly smooth, and its quality is exceptionally fine because of solidity, tenderness, and superior flavor.

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LETTUCE

One of the standbys of the garden. Very early crops are secured by sowing in the hot-bed where it speedily matures, but plants so grown lack the delicacy and flavor of garden-grown ones.

To grow lettuce satisfactorily, the soil must be rich and quick. If it makes slow development, it will be tough and lacking in fine flavor.

Seedlings can be transplanted from the hot-bed, if sowings can be made in the open ground. Sow at intervals of ten days or two weeks for a succession of crops. By a judicious selection of varieties and proper culture this vegetable can be enjoyed throughout the season.

White Cos is excellent for an extra early sort. Big Boston is one of the best for a general crop, being crisp, sweet, and tender, with that peculiar buttery flavor which makes this vegetable so enjoyable when grown to perfection. It retains its good qualities throughout the season, and is, I think, the best all-around variety for use at the north.

MELONS

These grow best in a soil of light loam, made very rich. If possible, secure a location fully

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exposed to the sun. It should be well worked to the depth of a foot at least.

Plant in hills five feet apart, each way. Do not be in too great a hurry to get the seed into the ground, as the seedling plants are very tender and a slight frost—even a chill—often proves the death of them. About the middle of May is quite early enough to plant them at the north. Previous to planting it is well to mix a shovelful of good manure with the soil in each hill. Work it over until it becomes part of the original soil. When the plants are about a foot long, pinch off the tips to make them branch. See that they never suffer for water. If you can conveniently do so, apply liquid manure occasionally.

A few plants for early fruiting can be started in the hot-bed in paper pots, as advised for cucumbers, but great care will have to be taken to prevent them from damping off. Give ventilation in pleasant weather by raising the sash slightly. This will allow the moisture in the air to pass off while admitting fresh air. Be very careful not to allow cold winds to strike the young plants. If the sun is strong enough to wilt them, cover the glass with cheesecloth during the middle of the day.

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If the beetle attacks the plants treat as advised for cucumber. It is a good plan to prevent the beetle from getting at them by placing boxes covered with netting about the young plants, when first set out.

It is an open question as to which kind of melon is most popular. Perhaps one enjoys as much popularity as the other. The rich, aromatic sweetness of the muskmelon appeals to one, while his neighbor declares the sugary, juicy, melting tenderness of the watermelon to be the perfection of all that is desirable in fruit. It is simply a question of taste—in the gastronomic sense of the term. Every garden ought to contain both kinds.

Perhaps the most popular variety of muskmelon at present is Rocky Ford. This sort is of the netted type, medium in size, with a flavor unsurpassed in sweetness and rich quality, its flesh firm and fine-grained, but with a delicious, melting tenderness which reminds one of a perfectly ripe peach.

Defender is another superior variety. This has the same meritorious qualities of Rocky Ford in a great degree, but its flesh is a rich yellow while that of the other is a light

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green. On this account it is more attractive for table use.

Nutmeg was not so long ago our most popular variety of this class of the melon family. It deserves cultivation today, because of its rich flavor and remarkable sweetness and the ease with which it is grown. It is also very productive.

Among the watermelons, Mountain Sweet deserves prominent mention. It grows to large size, and is very solid as to flesh, with a most delicious flavor. It melts in one's mouth.

Sweetheart is vigorous and productive, flesh bright red, crisp and sugary, and of that peculiar melting quality which makes this class of melon so popular.

Ice Cream is a well-known sort whose merits have made it a standard variety. Its flesh is very firm, juicy, and sweet.

Of the yellow-hearted sorts, Yellow Ice Cream is the only one I care to recommend. Most other yellow-meated kinds are coarse and lacking in flavor.

MUSHROOMS

It is generally supposed by the amateur gardener that there is some "knack" about

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mushroom-growing that only the skilful and experienced gardener can attain. In this he is mistaken. Anyone can grow this delicious vegetable in shed or cellar, provided the temperature can be kept at from 55° to 65°.

Horse-manure is used in making the beds for the reception of spawn. Work it over at intervals of three or four days, until it is evenly mixed. Never use it just as it comes from the stable. Get the straw from bedding out of it as well as you can, leaving nothing but the clear manure. Never allow it to get wet. This is important.

Make the bed about ten inches deep. Pack the manure down well. Insert a thermometer and when it registers 80° or 90°, put in the spawn. Break the spawn into pieces about the size of a silver quarter, and put a piece in holes four or five inches deep, and about ten inches apart. Cover evenly, and wait for about ten days, then examine. If the spawn was good and fresh, and has done its work properly by sending out its thread-like filaments through the soil in all directions, cover the bed with fresh earth of a loamy nature and press it down well. Put on this soil to



A THRIFTY MELON PATCH

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about the depth of two inches. Keep the temperature as even as possible. Avoid frequent and abrupt changes from heat to cold.

Follow these directions carefully, and it will not be long before you have a bountiful crop of this most enjoyable vegetable.

Great care should be taken in getting the best spawn possible. Buy only of reliable dealers.

ONION

This vegetable grows in almost any soil that is well worked and thoroughly manured. Sow as soon as the weather seems to be settled. Sow in rows, and thin out, if too thick. At least three inches should be allowed between the plants. Cultivate frequently, and keep down all weeds if you want a good crop.

There are just three varieties I would advise for general culture—Weathersfield Red, Yellow Danvers, and Silverskin.

The two first-named sorts are excellent keepers. The Silverskin is best for late summer and fall use. It has a white, tender, juicy flesh, very mild in flavor, therefore better liked by most persons than the stronger kinds. For pickling purposes, this variety is exten-

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sively grown by sowing it thickly, and gathering it when about half grown.

PARSLEY

This vegetable is much used in seasoning soups, and for garnishing roasts, fish, and other meat dishes. Sow in May, in rows a foot apart. Cover the seed with about half an inch of soil. Being rather slow to germinate, it is a good plan to soak the seed in warm water for a few hours before sowing it.

Parsley can easily be carried over winter, in pots, in the window-garden. For this purpose, make a late sowing, and set half a dozen seedlings in a seven or eight inch pot. The housewife who takes pride in the attractive appearance of the table will highly appreciate it in winter, when it is difficult to find material for the garnishing of roasts and fish courses on sale. A pot of parsley is more attractive than many of the plants used for window decoration, therefore it may be made to do double duty.

Summer Green is a strong grower, admirably adapted to summer use. Its foliage is large, finely curled, and of a rich green color which makes it very attractive.

What to Grow

Curled Perpetual has very tender, crisp leaves, much crimped and curled. This is the best variety for winter use.

PARSNIP

This is another of the vegetables which would be more highly prized if persons would only allow themselves to become familiar with its good qualities. As it is, this vegetable is quite extensively grown and finds a ready sale in the city markets, but many home gardens are without it.

The parsnip does well in almost any soil, if it has been spaded up to the depth of a foot and a half. Unlike most vegetables, it does not develop its finest flavor in a soil of extreme richness. It requires one of moderate richness only, and is best when only of medium size. Plants forced by rich soil to large and rapid growth are lacking in sweetness, and soon become tough and stringy.

Sow the seed in the open ground as early in the spring as it can be worked well. Sow in rows, and thin out to about four inches apart.

This plant is improved by our fall frosts. Late in the season—just before the ground is

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likely to freeze and stay frozen—dig the roots, and let them lie exposed to sunshine for two or three days before you store them away. Then pack in boxes of dry sand, and put in a cool place.

The best variety is the Hollow Crown.

PEAS

If the writer of the book could have but one vegetable, the pea would be his choice. It is so rich in flavor, so easily grown, so prolific, and so adapted to all gardens, that it deserves a place at the head of the list of desirable plants for garden culture.

Sow as early in the season as the ground can be worked. It is a plant that likes to make a good growth of roots before hot weather comes. Sow in rows, and sow deeply. It is a good plan to make trenches six inches deep, and sow the seed in them, covering, at first, with about an inch of soil. As the plants reach up, draw in more soil about them, and continue to do this until all the soil thrown out from the trench has been returned to it. In this way, the plants get their roots down deep in the soil where it will be moist in hot weather.

What to Grow

Keep the plants well cultivated.

The tall-growing sorts must have some kind of support. They take more kindly to brush than anything else, but as this is not always obtainable, a good substitute can be made of coarse-meshed wire netting. At first it may be necessary to train the young plants out and in among the meshes, to encourage them to take hold, but after a little they will develop tendrils which will twine themselves about the wires, and no further training will be necessary.

First among the very early peas I would place Nott's Excelsior. It is very productive, and has a flavor much superior to the ordinary early pea.

Gradus, or Prosperity, is also very productive, and of excellent quality.

Thomas Laxton is a comparatively new sort whose merits we are just becoming familiar with. It is a wrinkled pea, and, like all the wrinkled varieties, it has a sweetness not found among the smooth kinds.

For a medium variety, Advancer is as good as any kind I have any knowledge of. It is prolific, has large pods, and its flavor is delicious.

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For late crops, I would recommend but two varieties, Telephone and Champion of England. I would confine my choice to these two sorts simply because they combine all the good qualities of the other varieties described in the catalogues in a wonderful degree. They have that rich, sugary, delicious flavor which makes this vegetable so universal a favorite; they are exceedingly productive, and they are adapted to almost all localities. If there are any better sorts I do not know what they are.

XI.

WHAT TO GROW (*Continued*)

PEPPER

THIS vegetable is considered by the housewife as one of the most important of all garden vegetables, because of its usefulness in seasoning soups and salads, and as a basis for pickles, chow-chow, piccalilli, and various other appetizing condiments which the good cook takes delight in making.

The larger sorts are mainly used for pickling, because of their thicker flesh and milder flavor. The smaller kinds are favorites for flavoring soups and sauces.

Ruby Giant is a large-growing sort much used in making mangoes and for pickling.

Long Red Cayenne has a very pungent flavor, and is the standard variety used in soups and sauces.

Other desirable sorts are Golden Dawn, for mango-making and chow-chow, and Sweet Spanish, for use in salads.

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This plant can be started in the hot-bed, or seed can be sown in the open ground in May. Set the plants about eighteen inches apart, in rich, light soil.

POTATO

The soil best suited for the production of a potato of the best quality is one of rich, light, sandy loam, although the vegetable can be grown very satisfactorily in almost any soil. But on land heavy with clay, and not well drained, it never attains the size, flavor, and general excellence which characterizes it when grown in a soil better suited to its requirements. In such a soil it is often rough and scabby, therefore not very attractive to the eye, though it may be fairly well flavored and mealy when cooked.

It pays to make a special effort to give the potato a soil to its liking, if one cares to grow it to perfection. By mixing sand, old mortar, muck,—anything that has a tendency to lighten and make porous,—with a heavy soil, much can be done to improve the productiveness and quality of this vegetable. Good cultivation is also an important factor in the case.

What to Grow

Being a gross feeder, manure should be used liberally. If barnyard fertilizer is used, it should be old and thoroughly rotted, and well mixed with the soil. Never dump it into the hill, as I have seen some persons use it, without pulverizing, and without an effort to work it into the soil so perfectly and evenly that no clear manure can come in contact with the tubers. Fresh manure should never be used.

The best commercial fertilizers for the potato are plaster, lime, superphosphate of lime, and bone meal. The dealer of whom one purchases his fertilizers should be consulted as to the quantity to be used on the space devoted to this vegetable, and his advice should be strictly followed. No general directions as to the amount to be used can be given because fertilizers vary in strength.

Plant as early in spring as the ground can be worked to advantage, in rows three feet apart, and a foot apart in the row. Cover with about three inches of soil. Cultivate thoroughly, drawing the soil about the plants as they increase in size.

The Colorado beetle will be pretty sure to attack the plants early in the season. Often

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it will be found on sprouts just peering through the soil, therefore one must be on the watch for this destructive enemy from the very beginning. If allowed to do its deadly work without prompt interference, the tender young plants will soon be ruined. Paris green is the standard remedy. A tablespoonful to a pailful of water is about the right proportion to use. Apply it with a sprayer. See that it gets to all parts of the plant.

It is a good plan to go among the vines during the day and rap them with a stick, causing many of the larger beetles to fall to the ground where they can be crushed with the hoe, or trampled under foot. This pest multiplies with astonishing rapidity, and reaches development in so short a time that the importance of preventing the young beetles from maturing will be readily understood after a little experience with them.

Many growers of the potato combine Bordeaux mixture with Paris green in spraying, as spoken of in the chapter on Insecticides and Fungicides. The copper sulphate has a tendency to prevent blight and scab, they claim. If the soil on which your potatoes

What to Grow

are planted is low, or heavy, it may be well to try this method.

Perhaps the best early sort, all things considered, is Early Rose. This is the leading variety in almost all sections of the country. It is productive and of superior quality.

Beauty of Hebron is an old-time favorite, maturing early. It is of good size, fine quality, and very productive.

Early Ohio is another standard sort. The tubers of this variety are edible before they ripen.

Burbank's Seedling is a medium early sort, with a fine-grained, white flesh, of fine flavor. With many growers this is considered as the best of all potatoes for general use. It brings the highest price in market.

Rural New Yorker No. 2 stands at the head of the list of late varieties because of its excellent keeping qualities. It is large, smooth, of extra quality, and extremely productive.

PUMPKIN

Probably few amateur gardeners will attempt the culture of this vegetable because of its rampant habit of growth. In the average

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small garden it will occupy room which might better be given over to other plants. But if economy of space does not have to be considered, it is well to have a few hills of it to furnish material for the good old pumpkin pie which always seems to have a finer flavor if made from pumpkins of one's own growing.

Give it a rich, light soil—one of sandy loam, if possible. Plant in May, after the ground has become warm, in hills at least eight feet apart, having two or three plants to a hill.

The young plants must be protected from frost and the squash beetle. Dusting them with land plaster or road dust will drive away this enemy, or they may be covered with netting. A cone of paper placed over the plants on a cold night will prevent injury from frost.

After some fruit has set, cut off the end of the vines to prevent further production, thus throwing the strength of the plant into the development of the fruit already set.

The best sort for garden culture is the Sugar or New England Pie Pumpkin. This is small, with a firm, fine-grained flesh of great sweetness. It makes excellent pies. It is a good keeper if gathered before frost touches it, and

What to Grow

stored in a rather cool, dry place. The cellar is generally too damp for it. An airy, frost-proof loft is a better place in which to keep it.

RADISH

Not much space will be required for growing this favorite vegetable, as large quantities can be grown in small space. As it soon matures, it will be out of the way early in the season, and the ground originally given up to it can be planted with other vegetables.

A light, sandy soil is the ideal one for the radish. Quickness of growth is very important. It must be hurried ahead as rapidly as possible, and this is best done by making the soil very rich, and choosing a location fully exposed to the sun. Use old, well-decomposed manure, and work it thoroughly into the soil, which should be turned over and over until it is as fine as it can possibly be made. Sow the seed in rows four inches apart. Cover lightly. In order to have a succession, continue to sow seed at intervals of a week or ten days.

For a very early crop, sow in hot-bed, where the plants can be allowed to remain until they mature.

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Best varieties, Scarlet Turnip, White Globe, and Early Red.

Radishes can be grown for winter use by sowing in September or October. They can be kept for some time by packing in sand, and storing away from reach of frost. They should not be placed in a warm cellar, as a high temperature will cause them to wilt, and, after a little, to start into growth. Under either of these conditions, they will be worthless. A root cellar, in which the temperature is but little above the frost-point is the best place for them.

SALSIFY

One of the most delicious of vegetables for late fall and winter use is salsify, more commonly known as vegetable oyster, because it has a flavor somewhat similar to that of the bivalve.

It can be kept as long and as satisfactorily as the parsnip by digging it in November, just before the ground is likely to freeze for the winter, packing it in sand, and storing in the cellar. A quantity should always be left in the ground for use in spring.

What to Grow

Grow in light soil, well manured, and deeply worked. It can be sown any time after the ground is in working condition. Sow in rows, leaving about four inches between the plants. There are but few varieties, of which Sandwich Island Mammoth is the best for general culture.

SQUASH

This favorite vegetable is easily grown if given a rich and mellow soil.

There are summer squashes, and fall or winter ones. The summer varieties are edible only when full-grown, but unripe. They last but a short time. The late sorts must be well ripened to be palatable. They will keep through the winter in excellent condition if stored in a dry place which is cool, but not enough so to admit frost in cold weather. The cellar is not the place for them, being too damp, as a general thing. They are almost sure to rot there. The air of the place in which they are kept must be dry.

The best summer sorts are the Crookneck and Long Island Bush. The standard variety for winter use is the good old Hubbard, which has not been improved on in the last twenty-five

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years. This is very rich in quality, tender, sweet, and thick meated. It is fine for pie making.

Give the culture advised for melons.

TOMATO

This vegetable cannot be omitted from any garden without leaving one open to the charge of not living up to his privilege. Perhaps no other is so generally useful. It can be prepared in so many ways that the housewife who has a generous supply of it will feel herself equal to almost any emergency along culinary lines.

To secure an early crop, start the plants off in the hot-bed. This is quite necessary at the north, if one would get the full benefit of the plant, as many sorts, grown from planting in the open ground, will not mature their crop before frost comes.

Do not set the seedlings from the hot-bed out in the ground until there is no longer any danger of frosty weather, as they are very tender. It may be necessary to cover them on cold nights, after they are set out, even if the temperature does not go low enough for frost, as a chill will injure them almost as much as an actual freeze, so delicate are they.

What to Grow

Have the soil fine and rich. Set the plants about two feet apart. I have grown my best crops by training the plants on trellises. This keeps the fruit off the ground, thus preventing rot, and it enables the sun to get at it, thus hastening ripening. It will be necessary to tie the branches firmly, and with a stout string, as, when well set with fruit, they will be much too heavy to support themselves. In the case of late sorts, I find it advisable to cut off the ends of the branches after they have set considerable fruit. This stops the further production of fruit, and throws the strength of the plant to the development of the early setting, and greatly expedites matters. A plant allowed to have its own way will go on blooming and setting fruit until frost comes, and, as a natural consequence, it will be so late in perfecting its crops that quite likely none of it will ripen fully before cold weather comes.

If, at the coming of cold weather, your plants are well set with fully grown but only partially ripened fruit, pull them up by the roots, hang them on the sunny side of a building, and let the warmth and sunshine of pleasant days finish the ripening process as it will,

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very satisfactorily. Hang a blanket or something similar over the vines at night.

Tomatoes can be kept until Christmas in a cool, dry room, by spreading them on racks or shelves, so they will not touch each other.

The standard variety is Ponderosa, a large, solid-fleshed, tender and finely-flavored kind which bears enormous crops. Early Freedom is a quick-maturing sort which ripens several weeks ahead of Ponderosa.

TURNIP

This plant can be grown as a by-crop by sowing it among the corn or potatoes. Simply scatter the seed over the ground, and rake it in. Sow at intervals of two weeks for a succession. The white turnip is edible only when full grown. After that it soon becomes pithy and stringy. But the Rutabaga, or yellow turnip, is quite unlike its relative in this respect. It keeps sweet and tender until late in the winter. It will be found much more satisfactory for table use than the white kind. It keeps best in cool cellars or pits.

The crop intended for late fall and winter use should be grown from seed sown in August.

XII.

"GREENS" AND MISCELLANEOUS PLANTS

Most persons like greens, especially in spring when the system seems to demand a change from the somewhat heavy and restricted diet of winter. We gather dandelions from roadside and pasture, but they are so small that it takes a bushel basketful to make a "mess," so many have to be discarded as worthless, and a great deal of work is involved in "looking them over," and preparing them for cooking.

Now this plant can be grown to perfection by cultivating it in the garden. By treating it as well as other plants are treated, it grows to good size, each crown forming a thick mass of foliage, and one plant will furnish ten times the amount of material for cooking that you get from a wild plant.

It can be had very early in spring by inverting a box over it, as soon as the frost is out of the ground. Leave the box in place for several days. The exclusion from light will blanch

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the newly formed leaves, and make them far tenderer than those of the wild plant. It will also extract some of the bitter quality which seems to be, to some extent at least, the result of exposure to sunshine. No lover of greens who has a garden can afford to depend upon the highway or pasture for a supply of this healthful and really delicious vegetable.

Gather seed as soon as it ripens, and gets into the fluffy stage, and sow it in drills, covering very lightly. Thin out the plants so that each one left will have ample space in which to develop. It will be necessary to grow new plants each year, as, in gathering them for the table, the crown of the old plant will have to be cut away, thus putting an end to its life. Those who simply pluck away the foliage from about the crown make a great mistake. The most delicious part of the plant is the crown itself, with its mass of tender, unfolded foliage, and blossom-buds. This portion, when well blanched, makes a most appetizing salad.

Seedling beet plants make a very tender, delicate green. They are most pleasing when cooked with salt pork, as that gives them a flavor which they lack when cooked alone.

"Greens" and Miscellaneous Plants

However, the use of horseradish, freshly grated, pepper, mustard, or vinegar, supplies the lack, and makes the dish very satisfactory to most appetites.

The plants can be used until their roots have grown to be an inch or more across, roots and tops being cooked together.

Lettuce is often cooked for greens, but, like the beet, it calls for some condiment with decided flavor to make it entirely satisfactory.

Mustard, if gathered while young and tender, is highly prized as greens, because it has so pungent a flavor of its own. If cooked with beets or lettuce it adds a piquancy which will be greatly appreciated by most persons.

Spinach is perhaps the most extensively grown plant we have in the "green" line. It is tender, well flavored, early, and easily grown. Sow at intervals of ten days or two weeks in order to secure a succession.

Most housewives will be glad to have on hand a supply of what the seedsmen call "pot herbs," for flavoring soups, roasts, stews, and sausage.

Sage and summer savory are used more than all other kinds. Both are easily grown,

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and a few plants will be sufficient to supply the wants of a large family. Cut them when they are in bud. Hang them in a shady place until dry. Then crumble the leaves from the stalk, pulverize them finely, and put the powder into bottles and cork tightly. Prepared in this way, they will retain their strength much better than when kept in paper bags, as is the usual custom.

If pepper plants are cut off close to the ground, when their fruit is partially ripened, and hung in a dry place where the sun can get at them, they will ripen nearly all their pods. In this way they can be kept fresh throughout the greater part of winter. Of course the fruit will shrivel somewhat, but by putting it into warm water for a few minutes it will freshen up wonderfully, and become almost as plump as when gathered from the garden. This puts the pod in good shape for use in soups, salads, and the various kinds of "piccalillies" which women can prepare during the winter season from odds and ends of vegetables at their disposal.

Endive is widely grown for salad use. To make it edible, the leaves of half-matured

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plants should be folded over each other compactly and tied. This causes them to blanch, and become very tender. It is well to cover the plants thus treated with a roofing of boards, oil-cloth, or something that will exclude rain, as water getting among the foliage will be sure to cause rot. This plant is also good for greens.

Every garden should have a few roots of horseradish for spring use. It can be planted in out-of-the-way corners, where it will not interfere with other plants, and there it will take care of itself if weeds and grass are kept down. It grows from a division of old roots. Simply a piece of root having a growing point, or eye, under the ground, will speedily develop into a strong plant. Let the soil be rich and light. Young leaves of this plant make excellent greens, as they have something of the pungency peculiar to the grated root.

Those who grow and prepare their own horseradish will have an article far superior, in every respect, to the article to be bought of grocers. To have it in perfection it must be freshly dug and grated at once. It loses the tang which makes it so delightful an excitant of the appetite after standing for a short time

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in vinegar. Therefore it is advisable to prepare it in small quantities, using freshly dug root each time.

Swiss Chard is a variety of beet having very large leaves. These, being tender and well flavored, are much prized for greens. The large midribs of the leaves are often cut out and served like asparagus. Give the same culture as advised for the beet.

Sweet marjoram is used as a seasoning for soups and roasts by many, but most persons prefer summer savory, which is somewhat similar in flavor.

Dill is used to give a flavor to pickles, and sometimes in soups and sauces.

Sweet Basil is valued as a flavoring for highly seasoned soups and stews, and sometimes in salads.

XIII.

ASPARAGUS AND RHUBARB.

ASPARAGUS, one of the most delicious of all vegetables, is doubly prized because it can be had so early in the season. From old, well-established plantings, it can be cut for at least two months, or until other vegetables come in to take its place.

It is a plant anyone can grow, and it will grow almost anywhere. But it does not follow from this that asparagus is a plant that will take care of itself. True, it will live on and on, and I do not know that it would ever die out, though utterly neglected, but, in order to get a fine article, it is very necessary that the plant should be given care and cultivation. There is no vegetable that we grow that will better repay good treatment.

This vegetable seems to do best in rather sandy soils, but, as has been said, it will grow in all gardens, and do well if thoroughly manured, without much regard to the nature of

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the soil. Heavy soils will be greatly benefited by working sand into them, until they take on a friable quality. Plenty of food is the secret of successful culture, with the amateur.

Asparagus can be grown from seed, or from roots, which seedsmen furnish in one, two, and three-year-old sizes. I would advise planting roots, as you will get plants of cutting size a year or two sooner than you will from seedlings, and they will require less attention. Two-year-old roots are best.

Conover's Colossal is one of the standard varieties for planting at the north. The Mammoth is very fine flavored, tender, and prolific. There are several other kinds listed in the catalogues, but there is very little difference between them. Most kinds are good. There is not so much difference in quality as in size. As a general thing, the larger sorts are coarser than those of medium habit, but good cultivation will make almost any kind tender and fine flavored.

Plant the roots in rows four feet apart, and two and a half feet apart in the row.

The crowns of the plants should be at least six inches below the surface. In order to get

Asparagus and Rhubarb

them deep enough, dig trenches to receive them, making due allowance for the extra depth required for the roots. Shallow planting is never satisfactory.

Make the soil very rich by working into it liberal quantities of well-decomposed manure. Cow-manure is better than anything else, in the line of fertilizers. Keep the ground free from weeds. Cover the rows with coarse manure in fall. In spring, fork this covering into the soil well, and add more manure. Keep the ground about the plants well cultivated throughout the season.

If the growth is strong, some may be cut the second season. But do not cut close, or later than the first fortnight.

Many advise a top-dressing of salt, each spring, believing that the flavor of the plant is improved thereby. I have never been able to see that anything was gained by this application, except in the way of keeping down weeds, and these will be effectually disposed of without salt if you cultivate the ground well. As I have said, more depends on high feeding than anything else.

The asparagus beetle often does considerable injury to the plants. An application

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of one part pyrethrum powder to five parts flour is advised, dusting it lightly over the plants.

Of late years, much harm has been done by what is generally known as "rust." The trouble really comes from a fungus which attacks the plants and spreads rapidly from spores. The best remedy I have any knowledge of is the Bordeaux mixture spoken of in the chapter on Insecticides and Fungicides. Spray it all over the plants, as soon as the presence of the fungus is discovered. If this is not done promptly the entire plant will soon take on a rusty, red look. Then the thing to do is to cut the plants off close to the ground, and burn the tops to make sure that no spores are left to vegetate next season. But this method should only be resorted to when other means of checking the difficulty fail, as the top is needed to complete the annual development of the plant.

A bed of asparagus will be found one of the most appreciable features of the home garden, and, well made, it is good for a life time, growing better with age if the soil is thoroughly enriched each year, and weeds and grass are

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prevented from crowding it. Whatever manure is used should be well worked into the soil on each side of the row—not simply spread on the surface. Get it down where the roots can get at it.

RHUBARB

Another of the vegetables no well-regulated family can afford to go without is rhubarb. A pie made from tender stalks of it in early spring has all the deliciousness of an apple pie, and a flavor that the latter seldom has without the addition of spices. The housewife can make use of it in so many ways that she will not willingly be without it after having found out what can be done with it. She will consider it one of the garden standbys.

Rhubarb will, like asparagus, grow almost anywhere, and under all conditions, but, to get best results it must be given a deep, rich, mellow soil, and the soil must be *kept* rich, year after year.

Set in rows about four feet apart, and two feet or more apart in the row. Three feet would be better, if one does not have to economize space, as old plants make a very strong growth, and cover a large amount of surface.

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Rhubarb is a gross feeder, and speedily exhausts the soil in which it is planted, therefore manure must be used in very liberal quantities, or there will soon be a falling off in the size and quality of the plant. To be tender and delicate in flavor, it must make a rapid growth in spring.

Cover the roots with coarse litter in fall, and work this into the soil in spring, adding a generous amount of well-rotted manure from the barnyard, at the same time. Do this as soon as the frost is out of the ground.

Be sure to keep all flowering stalks cut off. If it is allowed to develop seed, the plant will throw all its energies into this performance, and next season you will be likely to have a greatly weakened plant as a natural consequence.

You can have rhubarb very early in the season by setting a headless barrel over a plant as soon as the frost is out of the ground, and banking up about it with horse-manure. The young stalks, from such forcing, will be extremely delicate in texture, and of the finest flavor, and will lack the acidity which characterizes the later growth.

Asparagus and Rhubarb

Large clumps of roots may be taken up in fall, packed in boxes, and stored away in sheds where they will remain dormant for a time. Then take them to the cellar, give them a place where they will get some light and a moderate amount of warmth, and in a little while they will begin to grow, and from them you will get material for pies that will be highly enjoyable in midwinter.

XIV.

STRAWBERRIES

PERHAPS no fruit has been more written about than the strawberry. Its popularity increases constantly, because those who have gardens find on trial that they can grow it very satisfactorily, if not to perfection.

Nearly every amateur who begins strawberry cultivation feels in duty bound to "read up" about it before making a start, and so voluminous is our literature along this line that after he has read several "Books on the Strawberry" he is more at a loss as to what to do than he was before he began his investigations, because almost every author advises his own particular method as *the method par excellence*, and the beginner does not consider himself competent to decide between those who set themselves up as authority. This is not to be wondered at, for growers and writers differ greatly about some features of strawberry growing. This difference, I am inclined



A PROTECTED STRAWBERRY BED

Strawberries

to think, is largely the results of a difference in location and soil, which fact the writers have ignored to a considerable extent, laying stress on method more than anything else.

The fact is, the strawberry is a plant that will do comparatively well under almost any culture, provided it really *is* culture. Simply setting out plants and letting them take care of themselves after that is *not* culture. Culture means care and attention, and if the strawberry is given even a small amount of either it will do better than almost anything else that can be grown in the home garden. This I have satisfied myself of from several years of personal experience and observation.

So elaborate are the instructions given by some writers on this fruit that the amateur cannot be expected to follow them, because he cannot give all his time to one phase of gardening, as he would be obliged to do if he were to set out to grow strawberries according to some of the so-called scientific methods. The writer of this book once attempted to do that, but he soon came to the conclusion that a common-sense method was preferable, and he has been very well satisfied with the result.

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The instructions which follow tell how he has grown this delicious fruit for a good many years in his own garden. They do not claim to be scientific in any sense of the term—just sensible, from the standpoint of the home gardener.

I would advise making the strawberry bed in spring, because the plants will have all the season to grow in and will attain a fine condition for giving a full crop the following season. If set out in fall—as they can be, to good advantage, if the work cannot be done in spring—they will give a partial crop the next season, but not a full crop until the following year.

In getting the ground ready for the reception of plants, plow or spade it well, and work the soil over until it is fine and mellow, incorporating with it a generous amount of well-rotted barnyard-manure, or, in case you cannot obtain this, such fertilizers as those who are familiar with the soil in your locality think are needed. It is necessary that the soil be quite rich if you want a strong development of plants, and a good crop of fruit depends largely on this. On no account make use of fresh manure.

Lay the plantation off into rows at least three feet apart. Four would be better, if

Strawberries

you can spare the ground. Set the plants at least eighteen inches apart in the row. A good many persons advise a foot, but I have found that plants set as closely as that are pretty sure to crowd each other, if they make a strong growth, and this is something to guard against while they are making their first season's development. Plant farther apart and you will get more and finer fruit from a less number of plants than you would from a larger number closely set.

In setting the plants be very careful to do good work, as much depends on the start they get early in the season, and, if carelessly planted, they will be a long time in getting thoroughly established. It does not take long to set them out in a haphazard way, but the plants will lose a thousand-fold more time by that method of planting than you will gain. Well-set plants will begin to grow right away, and as they will have none of the difficulties of poor planting to overcome their development will be rapid from the start. Spread out their roots as evenly and naturally as possible, and make the soil firm about them by pressing it down with the foot. Cut away all bruised and diseased leaves

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at the time of planting, and, if the plants have been long out of the ground, shorten their roots somewhat. This can be rapidly and easily done by gathering them together in the left hand, holding them in a compact bunch, and clipping off their tips squarely with a sharp knife or the pruning-shears. If this is done, the shortened roots will soon send out feeders from their tips, and the plants will get a much stronger and speedier start than they would if planted with the old more or less mutilated roots left in the condition in which they were sent out by the grower. This is true of almost all plants grown from a division of the roots.

If the plants are quite dry when received, place them in a pan of water for a short time before planting.

If you procure your plants from a friend and must carry them some distance, either puddle their roots by dipping them in a mixture of clay and water of the consistency of cream, or pack them in damp moss. Care should always be taken to keep the roots of strawberry plants moist from lifting to planting time.

Early in the season the plants will begin to throw out runners. Go along the rows, at

Strawberries

least once a week, and with a sharp spade cut off every runner that reaches over a foot from the plant into the row. Those *in* the row need not be interfered with.

After cutting the runners away from the plants, go between the rows with the garden cultivator and uproot every plant that has begun to establish itself there. Keep the ground well stirred and wholly free from weeds. This is easily done if the cultivator is kept going throughout the season.

Clipping off the ends of the runners will throw the strength of the plant into the development of itself, and the result will be strong, sturdy specimens at the close of the season, from which a good crop of fruit can reasonably be expected the next summer.

The above gives the treatment I would advise for the first year.

The second year, after the crop has been gathered, I would allow runners to reach out between the rows and take root there. It is highly important that the ground between the rows be well fertilized, frequently cultivated, and kept entirely free from weeds, in order to give these runners a chance to secure a good

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foothold. After they have begun to throw out roots from their joints, the use of the cultivator can be dispensed with in their immediate locality.

After a sufficient number of plants have gotten started between the rows to furnish as many as you think are needed, cut them loose from the old plants, and then go through the old row with the cultivator, uprooting every plant, or, if you choose to do so, turn them under with the spade. By this method you get a fresh set of roots for fruiting each season and crop them but once, and by allowing them to plant themselves by runner-propagation, you are saved the trouble of preparing new beds. Another advantage gained is that each year the plants are shifted to soil that has not been exhausted by a crop of fruit, but has been made rich for the reception of new plants.

I have grown strawberries in this way, in the same bed for several years in succession. Shifting the rows each year, as described, has kept the plants as strong and healthy as they would have been if set out in entirely new beds. And why should they not be, since they renew themselves each season?

Strawberries

The work of growing strawberries is greatly simplified by this method, and any amateur can understand it perfectly and see the advantages of it readily.

In fall, cover the plants with coarse hay or straw, but do not use too much or you may smother them. It should not be more than three inches deep. Some advise leaving this on the ground, in spring, to prevent the berries from coming in contact with the soil, but I would prefer taking the chances of their keeping clean without it, as it interferes greatly with the use of the cultivator, and you cannot afford to let the ground go unworked about your plants.

In spring, a liberal amount of good manure should be applied. This should go into the soil close to the roots of the plants.

Some varieties are staminate, some pistillate. Pistillate varieties must have perfect-flowered plants every eight or nine feet in the row, to pollinize them.

There are so many fine sorts on the market that it is not an easy matter to decide which are best. Indeed, it is not possible to decide this matter except in a general way, because some

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kinds do well in one soil and poorly in another. Before deciding on what kind to plant, ascertain from growers in your neighborhood what sorts they have succeeded with, and be governed largely by their advice.

Among the most popular varieties in general cultivation today are Bederwood, large, early, and a great bearer, Haverland, early and wonderfully productive; Sample, late, large, productive and fine-flavored; Sharpless, large, rich, and a great mid-season bearer, and Gandy, very late (a comparatively new candidate for popular favor that everyone who has grown it speaks well of). In order to prolong the season, I would advise planting both early and late sorts.

XV.

RASPBERRIES AND BLACKBERRIES

THE home garden is not complete unless it contains such small fruits as the raspberry and blackberry. They are second only to the strawberry in general flavor, and both would be much more extensively grown than they are at present if persons understood how easily they can be managed, and what generous returns they make for the comparatively small amount of care they require.

The raspberry is much more widely cultivated than the blackberry, for several reasons:

1. It is considered hardier.
2. It yields more bountifully.
3. It is supposed to require less care.

The first reason I consider of little account, because both plants must be given some protection in winter, at the north, in order to bring them through safely. And it is just as easy to protect one as the other.

While it may be true that one gets more

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fruit from the raspberry than from the blackberry, it is not the equal of the latter in quality, therefore where quality is considered of more importance than quantity one cannot afford to overlook the latter plant. I would not be understood, from this, as meaning to convey the impression that the raspberry is an inferior fruit. It is really a most excellent one. But the peculiar flavor and wine-like juiciness of the blackberry, combined with its delightful acidity, makes it a general favorite wherever it is grown to perfection. In short, while the raspberry is good—very good indeed—the blackberry is a little better.

The prevalent impression that the blackberry requires more care than the raspberry is not well founded. In fact, it can be grown quite as easily. Both plants are grown from root-cuttings, as a general thing. That is, nurserymen procure their stock from that manner of propagation, and it is the best method for the amateur to follow if he sets out to grow his own plants, because it is likely to give stronger plants than any other. Old plants are dug up, and their roots are cut apart in such a manner that each piece reserved for

Raspberries and Blackberries

planting has a growing point. These pieces, taken in fall, are put into boxes of sand, and buried in the ground and left there over winter. A callus forms on each piece during the winter, from which roots will be emitted later on, when the pieces are planted in the open ground, in spring. The nature of this callus is not very clearly understood, as yet, but it is supposed that it in some way supports the root-cutting until such a time as roots are formed for that purpose. These cuttings should be planted in rows in fine soil, and left there until they have made considerable growth. Then they should be transplanted to the place in the garden where they are expected to bear fruit.

Let me say, right here, that all kinds of small fruit should be planted at one side of the vegetable garden, or somewhere where they will not interfere with the plowing and cultivating of the latter. Give them a place of their own, and make it a permanent one.

Most amateur gardeners will prefer to purchase their plants of the nurseryman. Indeed, this is the most satisfactory thing to do, unless one chooses from motives of economy to propagate his own stock from old roots which he

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can procure from a neighbor who has plants to give away.

The plants sent out from the dealers will be one-year-old ones. That is, they will have had one season's growth from root-cuttings. Set them out in rows five feet apart, and at least four feet apart in the row. Five, or even six, will be better, if you have plenty of garden space at your disposal, as that will give you more room to work among them. They will be likely to about half cover the ground the first season, if you give them a rich soil and keep them going steadily ahead, as you should if you expect a good crop of fruit from them next year.

Keep the cultivator going among them most of the season. If they do not seem to be making as strong a growth as you think necessary apply more manure, and work it well about the roots of the plants.

After the first year, when the plants have become thoroughly established, they will make so strong a growth that they will meet in the rows, and it will be a difficult matter to use the cultivator between them. Here the hoe will come in play.

Raspberries and Blackberries

My method of training is this: I set stakes about eight feet apart, on each side of the row, about a foot away from the plants. These stakes should be at least four feet tall, and stout enough to stand the strain of two wires run along them from one end of the row to the other, one about two feet from the ground, and the other at the top. To these wires, in spring, I tie the canes of last year's growth,—the fruiting stalks of the plants,—dividing them as evenly as possible between the two sides of the row.

This answers a two-fold purpose. It supports the canes in such a manner that they are easily gotten at, at picking time, and their fruit is kept away from the dirt into which some of them would be likely to fall, under their own weight, if no support were given. And it allows the new growth of the season to be thrown up in the middle of the row where it will not interfere in the least with the fruit-bearing portions of the plants.

After the old canes have ripened their crop of fruit, cut them off. They have completed their work, and the sooner they are out of the way the better. Next year the growth of this

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season should be spread out and tied to the wires in the same manner, and the plants allowed to renew themselves by sending up a growth of canes, as described above. This process goes on year after year. The old roots remain, but we get an entirely new growth of fruiting stalks each season.

This method will be found very satisfactory, as it keeps the growth of each season apart, and makes it easy to remove the old wood. It is *not* an easy matter to do this if the growth of each season is allowed to mix with each other. It is largely because of this difficulty that so many plantations of these plants are neglected. One cannot handle the plants without serious injury to the hands, therefore they are let alone, and after a year or two of neglect they fail to give good crops and it is decided that the raspberries "have run out," and the plants are torn up and raspberry growing is abandoned as a failure. The failure is not with the plants. It is in the method of caring for them.

At the time of cutting away the old canes, I remove the stakes and wires because they will be in the way when the time comes to give the

Raspberries and Blackberries

plants winter protection, and they also interfere with the use of the cultivator, which should be run along the rows frequently after the seasons' crop of fruit has been gathered, to keep grass and weeds from getting established among the plants, and to prevent the soil from becoming hard.

Many "scientific" growers of these plants advocate a system of pruning for the young growth of each season which is so complex in its details that I do not believe one amateur in a thousand ever attempts to follow it. I am frank to admit that I never have, because I could never see the necessity of it, for one thing, and I did not have the time to devote to such elaborate treatment, for another. My system of pruning is so simple that there is really hardly enough about it to be called a system. It consists in nipping off the top of the young canes, when they are about three feet high. This encourages the production of laterals, and gives as much bearing surface as the plants can do justice to. This is all the pruning my plants get, except in the cutting away of the old growth, after fruiting, and the occasional thinning out of young canes if there

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seems to be more than are necessary. If a cane is pinched back when about three feet tall, it will not make more than a foot more of growth, that season, and this will make it just about the right height to tie to your upper wire in spring.

The ground should be well manured each season. Work whatever fertilizer you use into the soil about the roots, that the plants may get the full benefit of it early in the season, when fruit is setting. By keeping the soil highly manured, you increase the size of the fruit and you secure a strong growth of canes for fruiting next season. A little consideration of the matter will show you the necessity of using manure liberally. Do not lose sight of the fact that the plants have a double work to do—fruiting and self-perpetuation—and that they must be liberally fed in order to be able to do this work well. Indeed, if neglected for a single season, they will show signs of deterioration, and it will take some time to bring them back to the vigor they should never have been allowed to lose.

If given proper care, a plantation of these fruits will remain in healthy condition for

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years. There is no reason why they should not if they are encouraged to fully renew themselves annually.

Both raspberries and blackberries should have protection in winter, at the north. My method of caring for them is this: I begin at the end of the row, and gather all the canes in a hill into a bunch, and bend them down to the ground as flatly as possible, working slowly and carefully, to avoid breaking or cracking the stalks at their junction with the roots. It is well to have an assistant when this work is done. One cannot do it very well alone. Let one person bend the plants over and hold them down, while the other puts a spadeful of soil on them to keep them in place. Then take the next hill, bend it down so that its top overlaps the crown of the hill first treated, and so continue until all the plants in a row are flat, and in a line from one end of it to the other. Then go along the rows, a man on each side, and with a spade throw soil up against the plants. After having done this, I put on a covering of coarse litter from the barnyard. Straw or hay will answer the same purpose. This is given to shade such parts of the plants

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as are left exposed, not to keep out frost, as some might suppose. It is not frost which injures a tender plant. It is exposure to sunshine, which extracts frost. At night, the plant freezes again, and the frequent alternations of freezing and thawing results in a rupture of plant-cells. The covering of mulch keeps out the sun, and the canes remain frozen, which is precisely what we want.

In spring, after the frost is out of the ground, remove the covering of mulch, and go along the rows with a pitchfork, inserting its tines under the canes and lifting them carefully out of the soil that was thrown over them in fall. At first they will have anything but an upright look, but as the sap begins to circulate in them they will resume their old position, and they can then be tied to the wires which should not be put in place until after the bushes have received their spring manuring, and the soil has been levelled down about them. Barnyard manure is best of all, but if it cannot be obtained, bone meal and other commercial fertilizers will give excellent results.

The following varieties are suited to general culture:

Raspberries and Blackberries

BLACK RASPBERRIES.—Gregg. Large, productive, and fine flavored. One of the standard black-cap sorts.

Miami Black Cap. Sweet, juicy, and very productive.

Ohio Everbearing. Large, sweet, and very productive. This variety gives a fall crop from the canes of the current season's growth.

Seneca. Large and fine flavored. A variety that always sells well.

PURPLE SORTS.—Philadelphia. Good size, very hardy, wonderfully prolific.

Purple Cane. Medium size, sweet, and high flavored, strong in habit, and very productive. Excellent for home use, but too soft for marketing.

RED RASPBERRIES.—Cuthbert. Bright red, large, firm fleshed, but juicy. Very prolific.

Antwerp. Large, sweet, and with a peculiarly sprightly flavor. The standard market sort at the east.

BLACKBERRIES.—Snyder. Very hardy. Not as large as some other kinds, but desirable because of its ability to stand a northern winter better than most sorts.

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Western Triumph. Very large, sweet, and juicy. Too soft for market purposes, but excellent for home use.

Wilson's Early. Large, firm, sweet, and fine flavored. Very early, ripening at least two weeks sooner than ordinary varieties.

Ancient Briton. A small-berried kind from Wisconsin. Sweet, juicy, and of superior flavor. Very productive, valuable because it succeeds on soils where other kinds are failures.

XVI.

THE CURRANT AND THE GOOSEBERRY

THE currant is one of the best of all small fruits for general cultivation for several reasons: It seldom fails to bear a good crop. It is very hardy, requiring no protection in winter, even at the extreme north. It is of such easy culture that anyone can grow it who is willing to give it a little attention. It is one of the most healthful of all garden fruits. And it is one of the housewife's standbys, being unsurpassed for jellies, jams, preserving, pickling, and spicing, its delightful and sprightly acidity making it an almost necessary accompaniment of many meat dishes, with which a relish having a piquant flavor is demanded. For eating while fresh it is one of the pleasantest of all fruits with those who like something tart and juicy. The writer of this book much prefers it to the cherry.

Every garden should have a dozen or more bushes of it. With good cultivation this num-

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ber of bushes will yield so generously that few families will need more.

The currant likes a rather heavy soil. One containing considerable clay suits it better than a light loam, but it will do very well in the latter. One thing it insists on, however, if you would have it bear good crops of fine, large fruit, and that is, plenty of manure. It is a gross feeder, and no one need be afraid of using too much fertilizer in the currant patch.

Plants are easily grown from cuttings. Take half-ripened wood for this purpose. Cut it in six-inch lengths, and insert all but about two inches in the ground. In a short time roots will form. Set the plants thus secured in rows, in early fall, about a foot apart. Let them grow there until next season. They will be good, strong plants by fall. As soon as their foliage begins to show signs of ripening, set them in the rows where they are to fruit. There should be about four feet between the plants, and the rows should be six feet apart. Take up the young plants carefully, and make sure that the earth is packed firmly about their roots. Though there will be no more growth of top this season, they will be establishing themselves

The Currant and the Gooseberry

during the interval between transplanting and the coming of cold weather, and next year a fair crop of fruit can reasonably be expected from them. But a full crop cannot be expected until the bushes have attained greater size. It takes a currant about four years from the cutting to reach its prime.

Some advise training the plant as a standard—that is, allowing no shoots to grow from the base, but keeping it to one stalk. I prefer the bush form. I believe we get a much larger crop of fruit from it, and, in case of accident, the whole plant is not likely to be destroyed, as would be the case if it were trained to a single stalk.

I would advise letting at least half a dozen stalks grow from the base of each plant. After this number get a good start, I would rub off all other shoots that appear and allow no more to grow until next season. Then I would allow another half dozen to develop, with a view to removing the older ones, by and by, thus renewing the plant from time to time and keeping it strong and vigorous.

Each season I would go over each bush and cut out all weak wood, and thin it, if thick, so

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that air can circulate freely. This, with the removal from time to time of the older growth, is about all the pruning I consider necessary. At any rate, it is about all that my bushes get, and I am well satisfied with my yearly currant crop. I get large, perfect fruit in abundance, but it is the result of high feeding, rather than of any other treatment. Manure your currants well and pruning is a matter of secondary importance, except, as has been said, for the removal of weak wood and the purpose of occasional renewal. You cannot make any system of training and pruning take the place of manuring.

The ground about the bushes should be well worked and kept free from weeds and grass. This is a matter of very great importance. If the season happens to be a dry, hot one, it is a good plan to cover the soil with mulch. Moisture and coolness at the root are necessary to the development of a fine crop of fruit.

The currant-worm often destroys the season's crop in a few days if let alone. As soon as its presence is discovered, dust powdered hellebore over the entire plant. Care should be taken to get the fresh article. Old powder is generally worthless. Put it on the plants

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while they are wet with dew. Use it promptly and thoroughly, and repeat the operation daily, until not a worm is to be seen.

Sometimes the currant-borer does a good deal of damage. If you find a shoot that seems lacking in vigor, and whose leaves have begun to turn yellow early in the season, examine its stalks closely, and in most instances you will discover the hole through which it has made entrance to the stalk. Cut away every such shoot. There is no application that will prove effective, as it will not reach the place where the borer is hidden away.

Below I give a list of some of the best varieties for the amateur:

Cherry. Very large, wonderfully productive.

Red Dutch. Large, rich, and fine flavored. Great bearer. One of the standard kinds.

White Grape. Considered the best white kind. Large, juicy, rich and sweet.

White Dutch. A very fine sort. Large, rich in flavor, and sweeter than any other kind.

Black Naples. Enormous berry. Sweet, with a peculiar musky flavor which some persons dislike, but which most persons will appreciate after a little, if they do not at first.

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The gooseberry requires very nearly the same treatment as the currant. Care must be taken, however, to thin out the bush so that there will be a free circulation of air. If this is not done mildew will most likely result from dampness, and the crop will be a failure. The only effective remedy for mildew, so far as my experience goes, is flower of sulphur dusted over the entire plant while its leaves are damp. The open-head system of pruning is, however, in my opinion, the best preventive of this disease. That, and high feeding, which makes the bush so strong that it overcomes the disease by its own vigor. I would advise planting the gooseberry in airy locations, fully exposed to sunshine, but sheltered from cold winds and draughts, and keeping the ground cool by the liberal use of mulch.

Perhaps the best varieties are Downing, and Houghton's Seedling.

XVII.

THE GRAPE

THE fact that so much has been written about the grape and its culture goes to prove its popularity. But this fact also acts as a discouraging factor with the amateur who is inclined to attempt its cultivation, for, as soon as he begins to "read up" on grape culture, he finds himself facing so many theories that he soon gets sorely bewildered, and the result generally is that he abandons his plan because he feels himself incompetent to decide which of the many theories advocated he would be justified in following. In this connection I quote a paragraph from a recent article by E. P. Snell which I consider very pertinent to the subject in hand, and in which the writer fully expresses my opinion:

"So much has been written and said on the question of pruning that people have come to think it a matter almost beyond ordinary comprehension. The many different methods advo-

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cated are simply the opinions of many different persons, all aiming at the one object, but differing in methods and correspondingly in results. The one object of pruning is to keep the vine in a thrifty, healthy condition from year to year, by removing all of the superfluous growth of wood. The true method, and the one I try to follow, may be described as an ounce of good judgment combined with all the experience one may have at command. A vine, to be profitable, must be so pruned as to be able to mature and ripen perfectly the greatest amount of fruit possible without injury to itself from overloading. And to determine the capacity of the vine, we must take into consideration conditions resulting from last year's growth. If the wood is short, the canes spindling, and they have not matured more than three feet of their growth before frost, we may be sure that the vine was overloaded, and next season at least a third less fruit buds should be left. So, also, if the vine has made an abundant growth of wood, we may know that a greater number of fruit buds may be left on for the following season, for it is reasonable that a strong and healthy crop of

The Grape

wood indicates the vine's ability to produce a larger crop of fruit."

All of which means, when you come to sum it up, that an overloaded vine will make but poor growth of wood each season, and that the appearance of a vine at the end of the season will tell you whether you have asked too much or too little of it.

This simplifies matters very much for the amateur, for it gives him something definite to base an opinion on. Let him discard theories, and plant his grape-vines, treat them in what he considers a common-sense way, and wait for results, watching them carefully, and he will soon gain the facts from his experience which will enable him to make a success of his undertaking. Anybody can grow this delicious fruit who sets about it, and grow it well, too, and that without being a "scientific" grape-culturist.

My advice as to pruning is this: Watch the vines carefully as they make their annual growth, and rub off all but three or four of the strongest canes that start. Allow no others to grow during the season. This throws the strength of the plant into a few branches. In

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fall, when the vines are laid down for winter, cut away all but three or four feet of this growth. Or, if you choose to do so, you can nip off the ends of these vines after they have made four or five feet of growth, during the growing season. The only objection to this plan is, that if done quite early side branches are sometimes set out, and this is not desirable. Some prefer to let pruning wait until spring. I do not think it makes much difference when it is done. The object is to shorten the branch, and it is well to do this at a time when it will bleed least. In spring, when fruit buds appear, rub off at least half that start. Apply the advice given above by Mr. Snell as to the number you leave, basing your action on the general appearance of the vine. These things you must determine largely for yourself, for no advice can be given which will fit all cases fully.

"In pruning, remember that it is the new wood which bears the fruit. Remember, also, that the root can support only about so much stalk, and the less wood you have the larger the bunches of fruit. Little wood means full bunches. Long, straggling canes mean clusters bearing only a few berries each." That is what

The Grape

Green's "Fruit-Grower" has to say on this subject, and it strikes me as putting the whole matter in a nutshell.

The grape does very well in most soils, but it seems to have more of a liking for a gravelly loam than for a heavier soil. It likes liberal applications of manure yearly, but my experience goes to show that it does not care to have it worked very deeply into the soil. Spread manure on the surface, cover it with a mulch, and let the plants get the benefit from rains which will extract its nutriment and carry it down into the earth about their roots. I am inclined to think that anything which disturbs the roots of a grape interferes with its vigor, temporarily at least, and that deep working of the soil is not advisable. But this will not prevent you from keeping the ground clean about the plants. Allow not a weed to grow there.

Train your plants on a wire trellis, spreading the canes out horizontally, and tying them well as soon as they are lifted from the ground in spring.

In fall, just before cold weather seems likely to set in, cut the vines loose from their trellis, and lay them flat on the ground, and cover

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with five or six inches of earth. Do not be in too great a hurry to uncover them in spring. Wait until the weather is warm enough to encourage growth.

The best general purpose grape for culture at the north is the Concord. This succeeds everywhere and under almost any conditions.

Delaware is a red grape, sweet, and deliciously flavored.

If you have a dealer in small-fruit plants in your locality, it might be well to consult him before setting out grape-vines. He will doubtless be able to tell you what kinds do best there.

I have advised covering grape-vines in fall. In many sections of the north, this is not necessary. In many localities, however, this must be done, if one would have his vines come through the winter in good condition. The practice which prevails in different sections of the country will enable the reader to decide this matter for himself.

THE GARDENER'S CALENDAR

SUGGESTIONS AND REMINDERS OF WORK APPROPRIATE
TO EACH MONTH

JANUARY

THERE will not be much doing in strictly gardening operations this month, but one can be getting ready for the actual work of spring.

Material for hot-beds and cold-frames can be got ready now. Everything can be done except putting them together. It is an excellent plan to paint them outside and in. If this is done, they will last for years, if it is not done, they will soon begin to decay from the effect of heat and moisture.

I would advise putting the frames together with screws. This will admit of your taking them apart easily, after their use for the season is over, without breaking or otherwise injuring them, and they can be piled away in small space until wanted again. If not taken apart, they will be quite sure to be broken, as, from

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their bulkiness, they will always be in the way no matter where you put them.

You can save something by buying your sash unglazed and putting in the glass at home. For this purpose use the prepared putty sold under the name of Mastica. It is soft and easily applied, but soon hardens, and will last much longer than ordinary putty, which is generally adulterated with whiting. Paint the sash well before glazing. If you do not, the putty will not adhere to it.

It will be found wise economy to use double-strength glass, for hot-bed and cold-frame sash. Look each pane over carefully when you purchase it, and reject those having spots and air-bubbles in them. These will act on the principle of a burning-glass, and focus the rays of the sun in such a manner that they will burn the plants beneath them.

Get manure together for spring use. It can be piled in little heaps about the garden. Cover it to protect from rain. Order your fertilizers now, if you propose to make use of any.

It is a good plan to order seeds early in the season. If you put off doing this until the season of gardening operations is opening, you

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may be disappointed in getting them when wanted, and you take the chances of getting a poorer quality.

Don't let the pages of the catalogues devoted to "novelties" tempt you into investing in new things. Not one "novelty" in a hundred is worth growing. Hold fast to the varieties whose merit has been amply proved.

Go over the garden tools and make whatever repairs may be needed. It is a most vexatious thing to find that a garden tool, when you need it, is out of repair, and you must stop and put it in proper shape.

It is a good plan to give all woodwork about garden tools a coat or two of paint. They will last enough longer to make it richly worth while.

Racks and trellises can be made now. Posts for stringing wires on to support grape-vines, raspberries, and the like can be got ready now. Racks for tomatoes should be very substantially made, as they will have to sustain considerable weight.

Think out the work that will be upon you with a rush a little later, and do all of it that can be done in advance.

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FEBRUARY

Hot-beds for very early plants can be made this month. See chapter on Hot-beds and Cold-Frames for directions.

Mushrooms can be grown at this season as well as any other if the proper degree of temperature can be maintained.

If the cellar supply of salsify and parsnip has run short, plants can be dug from the open ground with but little difficulty, if the snow is not deep. Chop down about the roots with an old axe, cutting the frozen earth away as if it were wood. The roots will generally come out whole and uninjured, if you work carefully.

If potatoes, cabbages, and other vegetables have been stored in pits, they can be got at safely, on pleasant days, if care is taken to bank up the opening well afterward. Vegetables kept in this way will be found to have a most delicious flavor after having eaten cellar-stored ones for several months.

Pruning of all kinds of fruit-trees is now in order. Let your knife be sharp, that it may make a smooth cut. It is well to go over the cut surface with a coat of good paint, immediately after pruning.

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Look over the vegetables in the cellar and remove all that show the least indication of decay. This will be for the benefit of the remaining vegetables, as well as for the health of the family.

This is a good time of the year in which to draw up your garden plans. Don't be satisfied with the first plan. Look it over sharply and see if it cannot be improved. Plan for economy of space as well as labor. Too many gardens are simply jumbled together. No attention is given to orderly arrangement. The result is unsatisfactory from all points of view. Study up on the habits of the plants you intend to grow, and locate them in such a manner that there will be no interference between them, as they develop. This can easily be done if you give the matter a little careful consideration.

MARCH

Hot-bed making will now be in order. Do the work carefully, if you want good results.

Get the cold-frames ready for the reception of plants from the hot-bed as soon as they are in a condition to make the change. The longer a plant is left in the hot-bed after it is ready

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for the cold-frame, the less strength it will have.

Give the hot-bed close attention after seed is sown in it. After the plants are up, open the sash *just a little*, in pleasant weather, to let moisture escape which has gathered on the glass. But do not keep it open for more than a minute or two at a time, and never open it when the wind blows from a quarter that will let it strike on the plants, unless you can shield them from the draught.

If water is to be given, apply it from a pot having a fine-spray nozzle, and let it be of the temperature of the air inside the hot-bed. Use as little as possible. Aim to keep the soil moist, not wet.

If the snow has gone, boxes and barrels can be placed about clumps of rhubarb to encourage an early growth. Bank up about them with horse-manure. Cover the barrels or boxes at night. In fact, keep them covered, day and night, until the plants begin to grow.

If you cannot have a hot-bed, plants can be started in boxes in the living-room. They will not do as well as in the hot-bed, but, with careful management, they can be forced to

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make a fairly healthy growth. Care must be taken to give only enough water to keep the soil moist, but, on no account, must it be allowed to get dry, for that would mean the loss of your seedlings. Apply water with a fine sprayer. A stream would be likely to wash some of the plants out of the ground. Aim to keep the temperature as even as possible, ranging from 65° to 70° by day, and about 10° lower at night. Do not fail to admit fresh air to the room daily. This can be done safely, on cold days, by opening a door or window at some distance from the plants, and letting the outdoor air become warm before it reaches them, by mixing with the air of the room. Expose the plants to all the sunshine possible. The principal danger in growing seedlings in the living-room comes from excessive heat, too much moisture in the soil, and too little in the air of the room. Keep basins of water constantly evaporating on the stove. Sprinkle *about* the plants, but do not throw any water *on* them.

It is well to keep these plants in a room adjoining that in which there is fire heat, after the second or third week, as they will do better

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there than in a warmer place. The aim is to give them a good start-off without forcing them. A forced growth is always an unhealthy one, remember. In too hot a room they grow up weak and spindling, and are generally so lacking in vital force that plants grown from seed sown in the open ground a month or six weeks later are almost sure to get ahead of them before they have recovered from the check of transplanting.

It is a most excellent plan to put these plants out of doors on warm, sunshiny days, for two or three hours during the middle of the day, if they can be given a place sheltered from the wind. Be sure to bring them in before the temperature begins to fall, as it will about three o'clock, or perhaps earlier.

Cabbages which have been wintered in pits can be taken out now, their outside leaves cut away, and the heads stored in the cellar for immediate use. It is not safe to leave them where the water from the upper soil will get to them.

APRIL

If currants and gooseberries were not trimmed in fall, go over the bushes now and

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cut out all weak wood. If it is thick, thin it considerably. Manure liberally.

All kinds of small fruit can be set out as soon as the ground is in good working condition. But do not be in too great a hurry, and plant it in mud.

Unleached wood-ashes and bone meal, mixed, make an excellent manure for garden crops and small fruit. Do not fail to make use of it if you are short on barn-yard fertilizer. Apply a top dressing of it to grapes, currants and gooseberries early in the season.

Peas should be sown after the middle of the month, if the soil is in a condition to warrant.

The hardier kinds of garden vegetables can be put into the ground the latter part of the month, along the central and southern portion of the northern states, if the season has not been cold and backward. If it has, it is better to wait a little. Nothing is gained by being in too much of a hurry. Often all is lost and all has to be done over.

Remove the winter mulching from the strawberry bed. Make new beds, if you did not set out plants last year. Work the ground over thoroughly, and use only strong, vigorous

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plants. It pays to buy your plants from the dealer, rather than to pick them up all over the neighborhood. You *have* to buy them, if you want *to be sure of what you are planting*.

Seedlings can be transplanted from hot-bed to cold-frame. Remove the sashes daily from the latter, to harden off the plants in them.

Plow the garden, or spade it, as soon as the ground is rid of surplus moisture.

MAY

The cultivator will have to be used extensively this month, for weeds start early in the season, and we must get (and keep) ahead.

Sow dandelion for future use, as soon as its seed ripens.

Insects must be watched carefully now. It is a good plan to sift dry wood-ashes over such plants as cabbage, radish, potato, cucumber and squash, to prevent the flea-beetle from establishing himself there. The Colorado beetle is often found on potato plants as soon as they appear above the ground.

Never lose sight of the fact that a little work done now will save a good deal of hard work later on.

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Stake and tie up all vines that require such attention before much growth has been made.

Go over newly-set strawberry beds and pick off every fruit-stalk. Force the strength of the plant into the development of itself, rather than that of fruit, which it is not in a condition to mature satisfactorily.

Begin the use of the wheel-hoe as soon as the plants in the row are large enough to enable you to tell them from weeds. This implement and the cultivator must be kept going daily, even if there are few weeds to get rid of. Stirring the soil is a matter of almost as great importance as keeping the weeds down.

JUNE

Do not cut asparagus much after this month. Apply fertilizer, and keep the ground clean and open. Be on the lookout for "rust." If you see any indication of it, apply Bordeaux mixture at once.

Look out for worms among currants. A little neglect may result in the loss of the entire crop.

Set out celery for the main crop.

Use Bordeaux mixture on the grapes. Thin

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out the fruit, leaving not more than half that sets. Rub off all but the branches you intend for next year's fruiting. Keep the ground about the vines well stirred.

If a shiny black and green bug threatens to injure your melons, cucumbers, and squashes, make a sort of box of fine wire netting and place it over the plants. Bank up soil about it to prevent the enemy from working its way under.

Transplanted seedlings will need shading until they become established in their new quarters. I make a protection against the sun by cutting circular pieces of thick brown paper, a foot across. This I double over on one side, in such a manner as to give the paper a sort of funnel shape. Through the doubled-over portion I run a stick or wire, about a foot in length. This holds the cone in place, and the lower end of the stick or wire can be thrust into the ground, close to the plant needing protection. Thus I get all the shade required without shutting off a free circulation of air.

Go over the strawberry beds and nip off all the early runners. Allow none to grow until after the season's crop of fruit has ripened.

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Cultivate, cultivate, cultivate.

Be constantly on the outlook for all kinds of worms and insects, and wage relentless warfare against them, for now is the time when they do most damage to the garden.

Thin out the seedlings in the garden-rows, leaving only as many plants there as you think can be matured properly. Do not neglect to do this, at once, as you cannot afford to have the nutriment of the soil wasted on plants you have no use for.

JULY

July work will be largely a continuance of the work of June. Special suggestions will hardly be needed for it. The careful gardener will keep his eyes open and see what needs doing, and do it promptly, and thus be always abreast of his work if not ahead of it.

If the season should be a dry and hot one, mulching will be advisable. Grass-clippings from the lawn can be used to good advantage about all garden vegetables.

I would not advise one to begin watering the garden, unless there is a system of water-works that can be pressed into use. Not much can be done in the ordinary garden by watering

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from the well. You would have to give up all your time to it if you were to attempt this. Generally more harm than good results. You will apply only water enough to wet the surface of the soil, and it is the roots down deep in the ground that need moisture. Surface-watering encourages the production of surface roots, and you do not want that kind of growth. I would prefer to let the plants take their chances without such watering. But mulching is practicable and profitable.

Old straw or hay make a very satisfactory mulch. It should be put on quite thick—thick enough to thoroughly shade the ground and prevent the escape of moisture from the soil below.

But the use of the cultivator should be depended on to counteract the effects of drought, more than anything else. Stir the soil so frequently that it does not have a chance to crust over. Keep it in a condition to absorb every least little bit of moisture that may be in the air. If this is done, most plants will stand a dry spell without injury.

As soon as the radishes are out of the way, sow the ground they occupied to spinach or

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something that can be made use of as greens. Never let any portion of the garden go to waste.

AUGUST

Asparagus plants are now storing up material for next season's crop. Feed them well by giving a liberal top-dressing of fine manure, or some reliable commercial fertilizer. See that no weeds are allowed to grow among the plants.

Right here I want to say that the average gardener seems to lose a good deal of interest in a plant as soon as the crop of the season has been secured from it. This is all wrong. If it is a plant that lasts over the season, like asparagus or rhubarb, treat it with a view to the future. Have next season's crop in mind, and so care for the plants that they will be getting ready for it. This they cannot do satisfactorily if care is not given them throughout the season, year after year.

If you think it advisable to grow your own seed, save some of the earliest of each kind for this particular purpose. It is a good plan to hold a plant in reserve for seed-bearing, and

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give it the very best of treatment. Do not let it exhaust itself by overbearing. Pick off all the seed that forms after the first crop, and throw the entire strength of the plant into the perfecting of that. This is the only way in which extra fine seed can be grown by the home gardener. Too many amateurs seem to think that seed is seed, and it does not matter much how you come by it. But they will find, if they continue in the gardening business long, that plants from seed which has not been grown with a view to making it the best of its kind will soon "run out," and give most unsatisfactory results.

Now is the time to pinch off the ends of the blackberry canes, and induce the production of side branches.

The earlier varieties of cabbage should be disposed of as soon as they are thoroughly matured, and the ground on which they grew given up to some other crop.

Set out celery for a late crop.

As soon as the earlier plantings of celery begin to make upward growth, begin preparations for blanching, either by earthing up about the plants, or by setting boards up each side

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the row. Some do this by wrapping the plants with thick brown paper. Others set a piece of drain-tile over the plants. This is an excellent plan, if one has plenty of tile at disposal.

Keep the late crops of celery going rapidly ahead by thorough cultivation. The more rapid its growth the more likely you will be to secure a fine article. Slow-growing celery is a poor investment.

If you want your cucumbers to keep on bearing late in the season it will be necessary to see that no fruit is allowed to ripen. All the energy of the plant will be used up in the development of seed, if you allow it to have its own way. But interfere with it by preventing it from perfecting seed and it will at once set about making another effort to carry out Nature's plan of perpetuation, and, in doing this, it will keep on setting new fruit until frost comes.

Now is a good time to make currant cuttings.

Keep endive plants growing thriftily by the liberal use of manure and good cultivation.

Lettuce can be sown for a late crop.

Gooseberries can be grown from cuttings, but layering will be found the safest and surest

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method of propagation. Select shoots which start from near the base of the old plants. Bend them down so that they will form a curve whose centre can be covered with earth, and at the lowest part of this curve make a half-way cut through each shoot, from below. Then cover to the depth of two or three inches. Fasten the shoots firmly in place, so that they cannot be shifted about by winds. This can be done by pinning them to the soil, or a small stone can be placed on the earth with which they are covered. The extremity of the shoot should be trained into upright position by tying it to a small stake. Do not sever the layer from the parent plant until next season.

Harvest the onions which have begun to ripen off. You can tell this by the dying of their tops. Let the bulbs lie on the ground, exposed to full sunshine, for several days before storing them away. Put in a cool, dry, airy place.

Sow spinach for a late crop.

Look to the tomatoes. Make sure they are not setting more fruit than they can mature well. If you think they are, cut off the ends of each vine. This will force them to expend

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all the strength of the plant on the fruit already set, and the result will be vastly more satisfactory than a crop of inferior fruit. In this way we grow very large specimens, of finest possible quality. If no racks have been provided for your plants, set some stakes along the row, and nail strips to them about a foot and a half from the ground, and put the vines over them. This will allow a freer circulation of air and have a tendency to prevent rot from setting in, as it almost always will late in the season, if the vines of this plant are allowed to spread over the ground, shutting the sunshine away from the partially grown fruit and keeping it moist.

If there are lice on your cabbages, make prompt use of the kerosene emulsion. You need not be afraid of its injuring the plants in any way, and no poisoning can possibly result from it. Worms on cabbages can be controlled by dusting the plants with air-slaked lime.

If your celery does not seem to be making a satisfactory growth, it is possible that the manure you have applied was not to its liking. A little nitrate of soda worked into the soil along the row will make a great difference in

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its appearance, in a short time, in a good many soils. It is well worth your while to try it, and harm cannot come of it if no benefit results. Keep all experiments of this kind in mind for future repetition in case they turn out successfully.

If "rust" has struck your asparagus plants, cut and burn them at once. Very likely none would have developed if you had made use of Bordeaux mixture as soon as the plants began to look yellow. When any plant takes on a yellow look before it is time for it to ripen, you may be sure there is something wrong, somewhere. Search for the cause of trouble, and see if something cannot be done to remedy matters.

It is not too late to spray potatoes for blight and rot. These troubles are likely to set in at any time during the season. It is the late blight which does the most damage.

Strawberry plants can be set out this month. Mulch the beds as soon as possible after planting. Give the plants a chance to do well, from the start, and you may reasonably expect a good crop from them next season.

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SEPTEMBER

This is the month in which the amateur gardener will be most likely to get the greatest amount of pleasure from his garden. This because there are so many substantial results in the way of vegetables and fruit, showing what can be accomplished with but little trouble if one goes to work in the right way.

In this connection I want to quote a paragraph from the "National Fruit-Grower:" "What a pitiful sight it is to see a woman so hungry for a little fruit that she will drag herself through briars and bushes all day to gather a few quarts of blackberries, or wild gooseberries, when, for a few cents and a little use of spare time, her husband could have provided plenty of both at home, of a quality so much superior to the small flavorless fruit she tires herself out looking for that she would hardly recognize the two specimens as belonging to the same family. Frankly, we haven't much of an opinion of a man who is too blind to his own interests, and the interests of his family, to not have a garden and all the small fruits his family can make use of."

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September will prove to any man who is open to conviction that a good garden, and a small-fruit plantation, are among the best of all investments it is possible for him to make. He can live on the fat of the land now. Everything of the best and freshest in the vegetable line is at his disposal, and if he grows his own grapes, blackberries and other fruits, he is an independent man, and he has reason to be proud of his riches. He has no need to envy the man who has a great bank account. His garden is his bank—not on a very large scale, perhaps, but one that is not likely to fail, and from which he will realize compound interest on his investments in it. I wish every amateur gardener, at this time of the year, would think the matter over, and “take stock” of his wealth in garden stuff.

The tops of asparagus can be mowed off, to prevent the scattering of seed, which will produce a set of plants that you will have no use for. New beds can be made now.

Do not cultivate among blackberries and other small fruit after this month. Continued cultivation encourages continued growth. Late growth of branches is very undesirable.

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Sow cress, for fall use in salads. Its pungent flavor is delightful. Make the soil rich, to insure a speedy growth.

Continue to give careful attention to the late-crop celery. Save the “suds” of washing-day, and use along the rows. In blanching with boards, see that they are set close to the plants, and make sure that they are wide enough to reach to the tops of the plants, when the latter have reached full development. Anything narrower than that will result in half-way blanching, for unless light is excluded from all but the tips of the plants they will be tough and strong-flavored.

Continue the fight with the weeds. It will be well to make a special search for them. Let none perfect seed. If this policy is adhered to, throughout the season, next year there will be few weeds to fight.

Gather seed of such vegetables as you have grown for this particular purpose.

Harvest your peppers before the frost gets a chance at them.

Be sure to protect the squashes from frost if you want them to keep well. If they do not seem to have thoroughly ripened, cover them

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at night with blankets, or old newspapers. When they have every appearance of being ripe, gather them, and store in a warm, dry place. Handle them with extreme care, for every bruise means decay, later on. Do not cut away the stalks which attaches them to the vine. Save this with them, if you want them to keep well.

Gather in the onion crop as soon as the tops turn brown and crinkle down. Pull them, leave them on the beds, in the sun, for two or three days, and then "top" them, and store away in a cool and airy place.

This is a good time of the year to think about making a compost-bed. Most gardeners allow a great deal of good material to go to waste simply because they have no place to keep it in. You will be surprised to find what an amount of excellent fertilizer is thrown away, after you have had a compost-bed for a year or two. Make a pen in a corner of the garden, and throw into it everything of a vegetable nature that will decay readily. Rake up the leaves from the lawn and add to it. If you get a little extra manure, at any time, dump it in. Stir frequently, with a fork, and thoroughly saturate it, on every washing-day, with soap-

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suds. When you clear up the garden in fall, put all the stalks and other refuse into the compost-heap. In this way you will soon have a lot of good, rich soil without its costing you anything but a little labor. It is a good plan to add sand to it, muck, old sods, from time to time,—anything that will become fine and mellow after being worked over with other material. The compost-heap will give you just the kind of soil you need for early seed-sowing, and hot-bed use.

Sweet potatoes should be dug as soon as the frost has killed their tops. Dry off well in the sun, for two or three days, and store in a warm place, or pack in dry sand. Be sure that it is *very* dry, if you would have the tubers keep well. Home-grown ones that have thoroughly ripened will be found to be of much finer flavor than those which were dug while partially green, and have come a long distance to market.

OCTOBER

Potatoes should be dug this month. Reject any tuber which is not perfectly healthy. It is a good plan to grade them, as you gather them, that is, throw out all not large enough for

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cooking purposes. It doesn't pay to store away any that are too small for household use. Better give them to the chickens, or the pigs.

Many successful growers of the strawberry make a practice of burning over their beds this month, first mowing them. It certainly does some good, for all larvæ of worms and insects will be gotten rid of by it, and if there are no weeds in the beds there will not be material enough for the fire to feed on to do any damage.

Winter mulching of strawberries should be done about the time the ground is likely to freeze, but not before. If put on too early, the plants may make a late growth, especially if the weather is warm. Leaves are excellent material for this purpose, if you can get enough of them. The only objection to them is that they are so easily blown away. This difficulty can be remedied, however, by putting a light covering of hay or straw over the leaves.

Go over the garden and give it a thorough cleaning-up before cold weather sets in. The gardener who takes pride in his garden in summer ought to have pride in it in winter. Make the ground perfectly clean. Remove

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every rack and trellis. Store them away under shelter. In short, leave nothing out-doors that belongs under cover.

Pits for potatoes and other vegetables are easily made. Select for them a location that is high and dry. A well-drained spot is absolutely necessary. If you cannot have one that has the best of drainage, don't attempt to have a pit.

In making the pit, dig down for a foot and a half into the soil. Lay down some boards, as a sort of floor, and spread clean dry straw over them to the depth of five or six inches. Put your vegetables on this. Do not put enough into the pit to bring the top above the level of the ground. When it is filled, spread dry straw over the vegetables—a foot or more of it, or leaves, if you have them, to the depth of six or eight inches—being careful to make it even, and to see that there are no openings in it. Then cover with earth. Put on all that was thrown out of the pit, heaping it up well in the centre. Pack it down firmly. It is well to cover the pit with boards, or something that will have a tendency to shed rain. If the earth is properly put on, and is made high in

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the centre, it is not likely that water will work through, but one cannot be too sure that it will not, and water in a pit means disaster.

Cabbages can be wintered to perfection by the trench system. Dig a trench a foot or a foot and a half in depth, in the driest part of the garden. Let it be a little wider than the heads you propose to bury there. Select for this purpose the soundest heads you have. Do not trim them. Simply fold the outside leaves as firmly as possible over the head. Put six or eight inches of straw in the bottom of the trench and set the cabbages on it, head downward. Then put more straw about them, and throw back the soil from the trench. If there is not enough to cover the roots of the plants, it will not matter. You are not covering them to keep out the frost. Nail two boards together to make a sort of roof, and put these over the trench to shed rain. You will find that cabbages kept in this manner will come out in spring in fine condition. If frozen when removed from the trench, put them in a cool place where the frost will leave them gradually, or, if for immediate use, immerse the head in cold water. If you put them where it is warm

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immediately after removal from the pit, they will wilt, and if there is a poorer vegetable than a wilted cabbage I don't know what it is.

Parsnips, salsify, and turnips can be wintered safely in pits.

Prepare cold-frames for late celery. Let them be deep enough to accommodate the plant without bending down its top. Bank up about them with earth. Get sashes ready for them. About the last of the month take up the plants from the garden, and pack them away snugly inside the frame. Crowd them together, in fact. Then water well. Do not put on the sash right away, unless the weather is very cold. You can throw a blanket over the frame at night to prevent freezing. Some celery can be stored in the cellar, in sand. Keep the roots moist, and the top dry.

Go over the blackberries and raspberries, and make sure that all old wood has been removed before you lay your plants down for the winter. Choose a pleasant day for laying your plants down. If the weather is cold and raw, the probabilities are that you will not do a very thorough job. But never lose sight of the fact that it pays to be thorough.

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Spinach can be kept until Christmas if given a light protection of leaves or litter.

Lettuce in cold-frames will need plenty of air. The temperature ought to be about 55°. More harm is done by keeping the plants too warm than too cold. On cold nights, cover the sash with mats or shutters. Air daily.

Do not forget that mushrooms can be grown at any season of the year, if you can control temperature.

Dig salsify and parsnips and store those wanted for early use in the cellar. The main crop I would advise storing in pits. Some can be left in the ground, for spring use.

I do not know whether anyone but myself has ever tried wintering the parsnip in such a manner that it will wilt, without really drying up, but I am of the opinion that it is greatly improved. The juices of the plant seem to be condensed, and thereby gain a sweetness which a perfectly fresh, plump root does not have. I found this out accidentally, but ever since we have stored away a portion of our parsnips on racks where they will wither a trifle, but not become really dry, and every one in the family declares them far better than

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those taken right from the ground or pit. Try this plan, and see what you think of it.

The garden may be plowed now. Do not attempt to level the ground. Leave it in ridges, so that frost can get at it easily.

Give rhubarb and asparagus a good top dressing of fine manure, and then cover with coarse litter. Take up a few plants and put them in a box, for winter forcing. Or, if there is room for them, give them a place in the cold-frame. The cellar, however, will be the best place for them, if you can give them light.

DECEMBER

There will be little to do this month in connection with the garden, if everything was given the attention it deserved last month. It may be well to go over it again, and make a final clearing-up, however, to make sure that nothing was left undone.

Let me caution the reader as to the care of the cellar in which vegetables are stored. See that it is so well banked that frost cannot penetrate it. But make ample provision for ventilation. Have a pipe or wooden tube connected with one of the windows in such a man-

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ner that the air will be drawn from the cellar through it. This will not only help to keep the vegetables in good condition, but will possibly prevent sickness in the family, if the cellar happens to be under the living-rooms. Decaying vegetable matter often gives rise to fevers and other dangerous diseases. If an outlet for foul gases is provided, this source of danger will be removed.

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